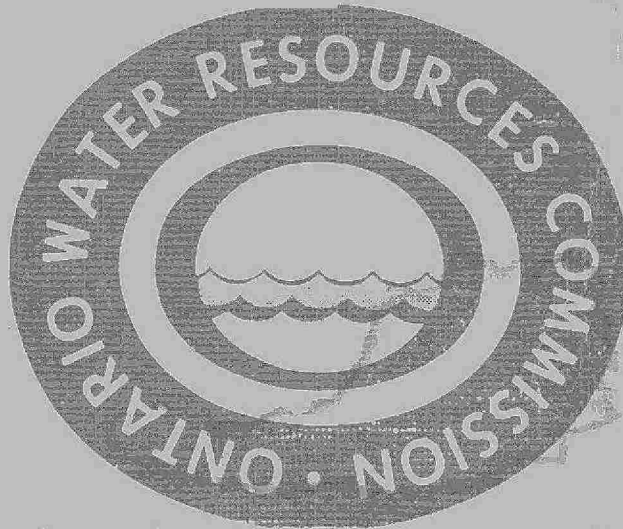


# water saga



**A Story of Water management in Ontario  
1956 - 1968**

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APXG

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## WATER SAGA

### The Story of the Ontario Water Resources Commission

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## WATER SAGA

### INTRODUCTION


This story of the Ontario Water Resources Commission, dealing with the years from its beginnings in 1956 and some of its activities through the years to the end of 1968, is not intended to be a straightforward and complete detailed recording of events in the order in which they occurred, but rather a generalized presentation of important facts related to the Commission's formation, its objectives, its growth and its achievements.

It is interesting to recall that back in 1956 it was Prime Minister Leslie M. Frost who was directly responsible for the setting up of the Commission under Ontario Government auspices. Further, it was the same Mr. Frost, since retired from government, who, in an interview in connection with the preparation of this saga, stated that because of the efforts of the OWRC more progress had been achieved in the water resources field in Ontario than in any other jurisdiction in North America.

Mr. Frost's appraisal, following almost 13 years of Commission activity, would appear to be justified, a true reflection of the efforts of the Commission members and staff, dedicated as they were to the cause of clean water for Ontario in an environment acceptable to all.

It also should be noted that no special attempt has been made in this report to outline particularly any of the failures which occurred -- for what organization or person exists without some such disappointments -- or to particularly point out in detail any difficulties the Commission encountered in its relations with municipalities, industries and individuals in its efforts to administer fairly the provisions of the Ontario Water Resources Commission Act. It could be said that this Act was administered wisely and with understanding, as well as within the financial limitations of the Commission itself and the others involved.

No attempt is made, either, to delineate problems brought about or restrictions placed on the Commission because of its natural involvement with government and the political situations inherent in government.

  
John C. Scott.

## WATER SAGA

### "FATHER" FROST

It probably would not be inappropriate to term Prime Minister Frost the "Father" of the Ontario Water Resources Commission which was set up following his and his government's consideration of the recommendations of the Water Resources and Supply Committee. He was in close touch with the situation at all times, particularly prior to the setting up of the committee, during its investigations and during the Commission's early years.

Mr. Frost's interest in his Province's water situation was always well known, but one newspaper reporter, Jack Cahill of the Toronto Daily Star, in writing a series entitled "The Tory Years" included one article concerned with Mr. Frost. In this episode Mr. Cahill made reference to the founding of the Ontario Water Resources Commission as follows:

One night in 1953 Frost was invited by Governor-General Vincent Massey to a small informal dinner at Government House in honor of U.S. President Eisenhower.

"It was a small dinner with my wife on his wife's birthday," Frost now recalls. "It was so informal we all sang Happy Birthday for Mamie.

"It was just among friends and so on and the President said to me, 'Mr. Frost, you people here have a great country with great possibilities so don't let them ruin your water.'



"He said, 'we have ruined ours in the States with our growth of population so that the great beautiful rivers that flow into the Atlantic and down through the Mississippi Valley and so on are contaminated.'

"Frost says Eisenhower took him by the shoulder and told him: "'You really should remember this, that really pure water is one of your greatest assets. But when you've got a lot of it, you don't think about it.'

"When he went home that night Frost conceived the idea of the Ontario Water Resources Commission (OWRC)."

Cahill went on to report that later:

"Frost appointed a young backbencher from London named John Robarts as a member of the new OWRC partly because London was suffering a water shortage but also because he wanted to see how Robarts would act in a position of authority."

It is interesting to note that Mr. Robarts later became Minister of Education in the Ontario Government under Mr. Frost and eventually succeeded him as Prime Minister following his being elected party leader at a regular party leadership convention.

## WATER SAGA -- Part I

For a good many years the saga of water in Ontario has been the story of the Ontario Water Resources Commission. It is a story of many segments, and, incidentally, no reservations need be placed on the use of the word saga in this instance. Saga is described in one popular dictionary as being a story of heroic achievement or adventure -- a description which well can be applied to the Commission and its work. It is most apt.

The fact that such a Commission was to be established by the Ontario Government first came to light publicly in the Speech from the Throne at the opening of the 2nd Session of the 25th Parliament of Ontario, Tuesday, January 31st, 1956.

At that time, the Lieutenant-Governor, Hon. L.O. Breithaupt, LL.D., said --

"Another vital need to assure Ontario's development is an abundance of water for industrial and domestic purposes, and coincidental with this the abatement and control of water pollution. Last year, the Ontario Water Resources and Supply Committee was set up. Its report has been printed as an appendix to Ontario's submission to the Royal Commission on Canada's Economic Prospects.... In further recognition of the importance of this work, legislation will be introduced creating in its place the Ontario Water Resources Commission which will have powers and be provided with funds to enable it, without delay, to make a vigorous start on water and pollution problems."

### 1956 Act Establishes OWRC

In the ordinary sequence of events, Prime Minister Leslie M. Frost, Q.C., introduced into the Legislature on February 23rd Bill No. 98, "An Act to establish the Ontario Water Resources Commission." It received first reading at that time. Following the usual legislative processes, Bill 98 received Royal Assent on March 28th and "The Ontario Water Resources Commission Act, 1956" became part of the Ontario Statutes. In assenting to this legislation, the Queen's representative told the legislators -- "You have enacted legislation to set up the Ontario Water Resources Commission. This Commission, which will follow the pattern established by the Hydro Electric Power Commission of Ontario, has been given authority to develop water supplies and to build and operate water supply and sewage disposal systems. Funds have been provided to enable it to set up its administrative organization and to make a start in areas in Southern Ontario where water shortages and sewage problems are most pressing and where there are distinct advantages of development on a regional basis."

This legislated beginning of the Commission, however, did not mark the true start of its saga, a tale which probably gained its roots as a result of conditions triggered during the world-wide depression of the 1930s and the Second World War. Until close to the two decades in which those two events occurred water, because it is such a renewable resource, largely was taken for granted in most parts of the world.

One area, in particular, where it was taken for granted was Ontario, with its southern sections bordering on the Great Lakes, comprising the world's greatest fresh water reservoir, and the St. Lawrence River. In addition, the rest of the Province was dotted with smaller lakes, rivers and other streams and, further, there appeared to be an abundance of ground water.

The water was there and its distribution as well as the task of keeping it relatively clean, even in the more populous areas, presented few difficulties. There always has been some form of pollution as long as there has been man, but at this particular period in Ontario water pollution could not be termed a major insurmountable problem. With a minimum of trouble, cities and towns were able to keep abreast of the situation and to keep in tune with the times and requirements as far as water supply and sewage disposal were concerned.

The end of the war brought no relief to the situation. In fact, it compounded it. The postwar period brought an industrial boom along with a mushrooming population, causing what already was becoming a major problem to intensify. Further, increasing capital costs and interest rates put additional obstacles in the paths of municipalities seeking to meet the suddenly increased demands for services. This was most apparent in the larger sprawling municipal areas, but was repeated, to lesser degree, in industrial-minded smaller communities.

It all added up to trouble -- double trouble, if you wish -- since the increased demand for water left some areas in short supply. In fact, some sections became desperate for water -- and the factor of steadily increasing population served only to make matters worse. Hardest hit were those parts of Ontario which, before the influx of industry and people, had been content with their ground water sources of supply. Similarly, increased pollution of lakes, rivers and other surface water sources caused treatment costs to soar as well as creating a diminishing supply of clean water.

#### Ontario Water Situation Critical

It isn't difficult to visualize, then, that Ontario's water situation in the mid-1950's was in a mess -- a condition which rapidly was approaching critical proportions.

Thus the complexities of the modern times brought about by the conditions outlined made it imperative that some authority do something to bring some order out of what could become chaos in regard to what surely could be considered one of Ontario's most important natural resources.

### Pressure on Government

For instance, in April, 1955, a memorandum re the water resources of Ontario was prepared following a survey of the Province which was sponsored by the Ontario Department of Health under a Federal Government health grant. It was stated the most critical water supply situation in Ontario was in the southwestern section inland from the Great Lakes. An adequate supply of water of good quality was needed for many uses, including municipal or domestic consumption, industrial demands, agriculture, recreation and others.

It was suggested also that planning of water resources should be made well in advance of actual needs. Further, Ontario legislation needed clarification to ensure proper control over conservation, distribution, allocation and rights to water supplies for various uses in all sections of the Province. Pollution of streams should be reduced to a minimum to permit best uses of these waters.

Methods should be determined for developing, financing and managing water supply projects to serve an area rather than one municipality.

One definite conclusion was that "present conditions warrant a definite policy at provincial level for dealing with our water resources", while another advocated "the formation of some provincial body with jurisdiction over all water resources", the function of which "would be to ensure the conservation and distribution of water to all parts of the Province, and the allocation of quantities to different users." There was need for continuous study and supervision of Ontario's water resources.

Since it was apparent that in order to serve some inland areas pipelines from the Great Lakes system would be required, the memorandum suggested that financing of the major projects in this regard would be involved since individual municipalities or private users could not undertake such projects on their own.

A short time later, the Water Resources Committee of Southwestern Ontario published a brief it had prepared on the Development and Control of Water Resources. This Committee had been set up following a meeting called by the Waterloo Chamber of Commerce on February 19th, 1954, of representatives of municipalities in that southwestern area.

This brief, recognizing that Ontario had led the way in the management and control of its power resources by the creation of the Hydro Electric Power Commission of Ontario, suggested "there is no doubt that control and management of the water resources will be in due time a greater factor in the growth and productivity of a great and important part of the Province."

The brief requested that the Provincial Government give consideration to -- (1) necessary legislation to ensure adequate control of the water resources.

(2) appointment of a provincial body to exercise control over the water resources of the Province.

(3) conduct an engineering study to best determine the best sources for future water supply, the means of transmission from source to user, estimate the cost and suggest financing methods.

This brief, it is interesting to note, was signed by A.M. Snider of Waterloo, who later became chairman of a government-appointed Water Resources and Supply Committee, and still later Chairman of the Ontario Water Resources Commission, which post he held from the date of his appointment, May 3rd, 1956, until his death June 7th, 1964.



### Government Takes Action

Ontario Government action followed closely on the heels of receipt of the memorandum and brief-- with a decision to set up an official Ontario Water Resources and Supply Committee. Prime Minister Frost in early May of 1955 requested Mr. Snider to act as chairman of such a body. The latter agreed and by the end of May he had received Mr. Frost's approval of terms of reference for the committee which he and the Provincial Economist, George E. Gathercole, had prepared. The latter was closely associated with Mr. Snider during the setting up of this committee.

The approved terms of reference were as follows:

The committee was to:

- (1) Ascertain the present and prospective need for an integrated water supply in Ontario with particular reference to southwestern Ontario.
- (2) Ascertain the best method of providing adequate quantities of suitable water to municipalities, industries, agriculture and other consumers in this area.
- (3) Ascertain the effects of the construction of an integrated water supply system to municipalities on local water tables and on the availability of water resources for agriculture, including irrigation and other purposes.

(4) Report on the extent of pollution in the lakes, rivers and streams and to recommend the best means of controlling it.

(5) Determine what legislation required to provide for transmission of water from source to municipality or user.

(6) Prepare an estimate of the probable cost of an adequate system and to ascertain the best means for financing such a system on a basis that in the long run would be self liquidating.

(7) Report on the coordination of action by municipalities and the Provincial Government in the financing, administration and control of the water system.

(8) Ascertain the best administrative organization for maintaining continuity of operation and expansion and for providing efficient management and effective safeguards to ensure the purity and adequacy of water supplies.

(9) Determine the urgency of each portion of the water system so that a schedule of completion may be provided.

(10) Report on the best means of ensuring the Province's continued control over water resources, particularly with reference to provisions of the international boundary water treaties and any other relevant statutes.

### Water Resources and Supply Committee

A provincial election temporarily held up appointment of other members of the new committee, but near the end of July, Mr. Frost, whose government had been returned to office, announced the following would join Mr. Snider:

Dr. C.H. Reason - surgeon and chairman of the London Public Utilities Commission.

B.L. Bedford - Chatham lawyer and former mayor of that city.

W.D. Conklin Q.C.- Kingsville lawyer and businessman.

J.A. Vance - Woodstock contractor and past president of the Engineering Institute of Canada.

Advisors to the committee were announced as:

J.A. Millar - Ontario's Deputy Minister of Public Works, Engineering Division.

Dr. A.E. Berry - Director, Division of Sanitary Engineering, Ontario Department of Health.

The committee held its first meeting, an organizational gathering, in Toronto on August 10th, following a conference with Mr. Frost. Following the meeting Mr. Snider announced -- "We are started now and face a tremendous task. Our terms of reference are broad and we have much information to gather. We will get this information by meeting often and by holding public meetings in various municipalities to determine local problems."

Two members of the Committee were unable to complete their assignments -- Dr. Reason died after an illness which began soon after organization of the Committee, while illness prevented Mr. Bedford from participation towards the end of the Committee's activities.

The situation in southwestern Ontario at the time was well summed up by Professor W.M. Walkinshaw of the University of Toronto's Department of Civil Engineering in an address before the 69th annual meeting of the Engineering Institute of Canada at Toronto in May, 1955. He concluded there was a critical situation as regards ground water supply in the region, with problems existing in regard to both the quantity and quality of the water.

He added that many important cities whose welfare was a matter of vital concern to the Province as a whole were dependent upon supplies which at best were uncertain. The main cities causing concern were London, and Kitchener and Waterloo. Others were Aylmer, Dresden, Stratford and Leamington.

He mentioned that the 1950 Report of the Select Committee of the Ontario Legislature on Conservation made a recommendation that "a detailed survey should be made to ascertain the feasibility and costs of piping water from the Great Lakes system to be distributed as a public utility for the benefit of participating municipalities." Professor Walkinshaw pointed out several examples of lengthy pipeline projects -- Winnipeg's 98-mile aqueduct, also the 78-mile line serving Saginaw and Midland in the State of Michigan with water from Lake Huron.

He pointed out, however, that pipeline planners and builders in this southwestern part of Ontario would have to take into account the elevations of the cities requiring the water compared to the elevations of the lakes concerned -- Erie and Huron. The lakes ranged from 572 to 580 feet whereas the cities mentioned ranged anywhere from 800 to 1100 feet.

The speaker hailed the appointment of a provincial committee to study means of distributing lake water to the inland cities as a welcome development.

### Committee Activities

The Committee continued holding regular meetings in Toronto, and on September 19th started staging area hearings, starting with Essex County. Then came Lambton and Kent counties, Elgin, Norfolk, Middlesex, Oxford and Waterloo. The last-named was held March 15th, 1956, shortly before the formation of the Ontario Water Resources Commission which, incidentally, continued holding such hearings in various other parts of the Province.

Such hearings aided the Committee, and afterwards the Commission, to obtain first-hand knowledge of situations pertaining in the various areas. They also were of value in acquainting the public, and especially municipal representatives and industry with the activities and objectives of the official bodies.

The Committee undertook engineering surveys for Essex County, St. Thomas and Dresden, and some preliminary studies were made in Lambton County. All of these were for assessing the feasibility of bringing water inland to supply water deficient communities.

During a break in the first meeting of the Committee on August 10th, members visited the Prime Minister, Mr. Frost, who said their task was of great importance -- they were engaged in a vital public service and the success of their efforts would depend on co-operation between municipalities, industry, agriculture and the Provincial Government.

He also stressed that plans developed by the Committee must be self-liquidating (this was made clear at subsequent public hearings held by the Committee -- indicating, particularly to municipalities, that Provincial Government assistance in the obtaining of required services would not include direct financial aid.)

At the same time, the Prime Minister emphasized the importance of pollution in the Committee's considerations.

In this connection it is interesting to note that at Meeting No. 3, Nov. 15th, consideration was given to the provision of sewage systems in conjunction with water supply systems. Dr. Berry remarked that the cost of a sewage systems might be so high that the possibility of a waterworks system might not be favored by many municipalities. However, he said, the two could not be disassociated and suggested it would be the responsibility of the Committee to make sure that adequate sewage facilities were installed by municipalities obtaining new water supplies.

As a result of Mr. Frost's remark that plans developed by the Committee must be self-liquidating, the Committee subsequently prepared a text for use in connection with the Chairman's opening remarks at each hearing. One section stated -- "While the Government is prepared to make a complete study of the water situation and prepare plans and initiate projects to provide water, it is not prepared to put money into a water system that will not return all the money advanced as time goes on. The plan must pay its way -- like Hydro -- it must be self-liquidating. Municipalities that secure water must be prepared to pay for it. It is essential, therefore, that the system be so planned that water becomes available as the municipalities and rural areas need it."

This prepared preamble to the meetings went on to say -- "Many areas now have a fairly satisfactory source of water, reasonably free from pollution. Water that is supplied from Provincial projects must be regarded as supplementary and the present source, if satisfactory, must be utilized to the limit. Water systems that involve pipelines and expensive pumping installations result in water costs that are higher than those for satisfactory ground water supplies close at hand. Lake water involves treatment and its taste may not be quite as satisfactory as the present supply."



By the time the Committee had held five public hearings, it had been decided to proceed with planning for a pilot project installation in the County of Essex which had a particular need for a water supply. Guidelines for the planning of such a project were presented at the Committee's November 15th, meeting.

It was proposed by Dr. Berry, a Committee technical adviser, that the following information would be a basic necessity prior to launching the first project in Essex:

- (1) Sources of water available for domestic, industrial, or agricultural uses;
- (2) Best location for intake or intakes in Lake Erie or Lake St. Clair;
- (3) The details of pipelines needed to supply water for all purposes within the county;
- (4) Cost of delivering water to points within the county for
  - (a) Unfiltered water treated by chlorination.
  - (b) Water filtered and chlorinated at the lake.
- (5) The advisability of storage reservoirs at appropriate locations to reduce the sizes of pipelines and pumping facilities;
- (6) Means of providing water for irrigation -- advisability of storage and pumping facilities being provided by each farmer.

It was agreed that irrigation, though unlikely to be the basis for the first pilot project, inevitably would have to come into the general plan.

At this third meeting the Committee members also agreed with a proposed program of activity which Mr. Vance outlined and suggested might usefully form the basis of the Committee's work at this stage. His proposals were that--

(1) Two water districts be set up in Essex County, the city of Windsor together with its adjoining areas, and the remainder of the county;

(2) A comprehensive engineering survey of the county, excluding the Windsor area, be carried out to estimate the requirements for domestic industrial and irrigation water requirements and pollution control needs;

(3) A comprehensive appraisal be made of water supply sources available to the county;

(4) Forecast be prepared of water requirements for each municipality for future years;

(5) Preparation of estimates of costs for supplying the required amount from the available resources.

C.G.R. Armstrong, Windsor consulting engineer, was at the meeting and after a technical discussion was requested to submit a proposal in regard to the carrying out of such a survey. Subsequently, Mr. Armstrong presented the Committee with a proposal and he was commissioned to make a survey, and submit an estimate of cost with a preliminary plan for a water system "that will adequately take care of the water requirements of the towns of Essex and Harrow." The plan was to provide for estimated future expansion for the next 10 to 25 years.

In addition, a cost estimate and plan was to be submitted for a water system covering the requirements for irrigation of the southern section of the County of Essex, "in that area that is being presently irrigated or considered suitable for irrigation."

A thorough investigation was to be made of Lake Erie adjacent to the county to determine the most suitable locations for the necessary intake lines, while a report was to be made also of the water requirements of that portion of the county not presently being served by Windsor.

Thus, the Committee had instigated the start of what was to become an enormous program -- to be taken over in a short time as it turned out by a new body the basis of which ultimately was suggested by the Committee -- the Ontario Water Resources Commission.

It should be noted that with the September 14th meeting Hon. William Griesinger, Minister of Public Works, began taking an active interest in the operations of the Committee, as the Government's official observer. At that session Col. Griesinger placed the services of himself and his department at the Committee's disposal.

Also, during the same meeting, Chairman Snider reported on a visit he paid to General A.G.L. McNaughton, Chairman of the Canadian Section of the International Joint Commission. He said General McNaughton indicated there should be no difficulty in obtaining permission of the IJC for plans to utilize, for domestic and industrial use, water from one Great Lake and discharge it into another, provided the discharge took place above Niagara Falls. The Canadian IJC chief also had mentioned six Ontario locations where pollution was causing international difficulty -- Sault Ste. Marie, Sarnia, Windsor, Fighting Island, six miles below Windsor and 14 miles up the Detroit River from its mouth, Amherstburg and Fort Erie.

Between its second and third meetings, from September 14th to November 15th, the Committee held five public hearings.

The first, held in the Town of Essex, September 19th, concerned the County of Essex. More than 75 persons, including representatives of cities, towns, villages, townships, agricultural associations, industry were in attendance.

Essex County Stituation Critical

In a personal report to Prime Minister Frost, Mr. Snider wrote that "we were almost astounded at some of the information given us -- villages and rural areas with no local water fit to use, tank trucks hauling water from the lakes to inland areas, with streams and drainage ditches badly polluted. We selected Essex as being one of several areas having urgent water problems and we came away convinced that this location will have to be given attention promptly."

Mr. Snider went on to report that at a subsequent hearing in Chatham, covering Kent and Lambton counties, on Sept. 20th, it was found the situation of the inland areas in these counties "is similar in many respects to those of Essex -- well water with salt and sulphur, rivers and streams badly polluted, tank trucks serving districts with poor water."

At the Essex hearing on September 19th, evidence produced dovetailed into the major point that the county's water situation probably was the most critical in the southwestern Ontario area. The Committee was told the Town of Essex probably had reached its maximum growth unless more water could be obtained -- it urgently needed seven million additional gallons per month. Harrow officials pointed out that their town had no municipal system, but it needed one immediately with a peak capacity of 300 gallons per minute.

Harrow's story in essence was that water tables were lowering rapidly -- an estimated drop of five feet in ground water levels in eight years. The necessary deepening of wells had not been very successful, with sulphur, salt and iron being found more and more in the limited well supply.

Mayor E.F. Taylor indicated Harrow would be pleased to participate in a common water system with other municipalities in the region.

The Town of Essex brief, submitted by that municipality's solicitor, Forbes B. Geddes Q.C., said it was felt that Lake Erie would be the most satisfactory source of supply, having in mind quantity, quality and cost.

## WATER SAGA -- Part II

### Frost-St. Laurent Correspondence

Incidentally, it was the Provincial Economist, George E. Gathercole, to whom Mr. Frost looked for advice and assistance at this time while formulating plans for Ontario Government action in regard to the water situation.

Involved in Mr. Frost's thinking during the 1954-1956 period was correspondence between himself and Prime Minister Louis St. Laurent concerning pollution of boundary waters in the connecting channels of the Great Lakes. At the outset, in a letter dated from Ottawa, November 16, 1954, Mr. St. Laurent reminded Mr. Frost of a 1950 report of the International Joint Commission which stated that these waters "are being polluted on either side of the boundary to the injury of health and property on the other side of the boundary". This indicated that the pollution was in excess of that which Canada and the United States agreed to prevent when they ratified Article IV of the Boundary Waters Treaty of 1909. The IJC report resulted from a joint 1946 reference to the Commission by the Canadian and Ontario governments of the subject of pollution of these specific waters.

The Canadian prime minister reminded Mr. Frost that "both countries seemed, at the time of the 1950 report, to bear about the same responsibility for the state of affairs, though pollution was reported -- in many instances -- to be heavier on the United States side of the boundary." The Commission, therefore, recommended the adoption of "Objectives for Boundary Waters Quality Control" by the governments of Canada and the United States as criteria to be met in preventing the pollution contemplated by the Treaty.

He further reminded Mr. Frost that the IJC's recommendation was, "after consultation with your Government," accepted by the governments of the United States and Canada and the International Joint Commission was requested to establish and maintain continuing supervision of the pollution of boundary waters in the connecting channels of the Great Lakes system in order to ensure compliance with the "Objectives". (This supervision was accomplished through the Technical Advisory Board of the Commission which co-operated closely with State and Provincial authorities concerned.)



Mr. St. Laurent also told Mr. Frost that Attorney-General Frank G. Millard of the State of Michigan had made strong representations to the IJC to the effect that Canada was polluting the water supply of municipalities in Michigan, and, in particular, that of Detroit, in violation of the Boundary Waters Treaty of 1909.

"The continued discharge of raw sewage into the connecting channels of the Great Lakes system may be not only detrimental to the health and welfare of the people living on both sides of the international boundary but may -- at any given moment -- constitute a violation by Canada of the Boundary Waters Treaty of 1909 as regards the pollution of these waters", Mr. St. Laurent wrote. "Such an occurrence would naturally have serious repercussions on Canada's relations with the United States."

The Canadian prime minister did state, however, that the IJC report that a solution to the phase of the problem dealing with industrial pollution appeared to be in sight, was a source of satisfaction to him. Nevertheless, the IJC, through General A.G.L. McNaughton, Chairman of the Commission's Canadian Section, had reported to the Canadian Government that the situation with regard to the discharge of municipal sewage and waste in Ontario "continues to cause anxiety."

Mr. Frost replied in a letter dated December 23rd, pointing out causes of the difficulties encountered as well as the fact that "in recent years, the number of disposal plants in the Province has been increased by 50 per cent" and that others had been enlarged with others in the development stage. "Today the Province has twice as many plants for complete treatment as all the rest of Canada," he wrote.

He added that while the expansion of sewage treatment was progressing in many parts of Ontario, it had, however, made less headway in some of the border municipalities.

"The expenditures required in many of these cases are extremely large and may be beyond the capacity of these municipalities to finance out of their own resources," Mr. Frost wrote. "We recognize the gravity of the pollution problem and the necessity for finding a solution. We are advising the municipalities concerned that it is imperative for remedial measures to be adopted."

The last paragraph of his letter to the Canadian prime minister revealed his and his Government's thinking concerning the overall federal-provincial fiscal problem of the day and the relation of it to the specific problem of water pollution control.

"The pollution of our boundary waters, however, emphasizes the heavy financial burdens and responsibilities that rest upon a Province which has a concentration of industry and population", wrote Mr. Frost. "While the huge industrial development experienced by Ontario has undoubtedly added to the tax resources of the Province and the Federal Government, at the same time it has added very greatly to the demands upon the Ontario Government for the extension of provincial services. For Ontario to earn a corporation tax dollar, it has to make many commitments, including the pledging of its credit for the expansion of hydro-electric power, which are not required by a province which receives a corporation tax dollar containing a great deal of subsidy. For this reason, I firmly believe that the abatement of pollution should be considered as part of the broader Federal-Provincial fiscal problem."

In Mr. St. Laurent's reply to Mr. Frost in this instance he stated: "After careful consideration the Canadian Government has come to the conclusion that the abatement of pollution in boundary waters cannot usefully be considered within the context of federal-provincial fiscal arrangements. It is true, of course, that expenditure on the abatement of pollution -- like expenditure on any other municipal service -- must impinge in some fashion upon the complex of municipal or provincial-municipal finance. But the pollution with which we are here concerned is confined to a small number of places and could be corrected by the expenditure of sums which are relatively small in provincial terms although they may be significant in the case of individual municipalities. It should be added, too, that the Canadian Government does not consider that in equity it can undertake to subsidize the construction of essential disposal plants in municipalities situated on boundary waters when, for a number of reasons, similar treatment could not be extended to communities elsewhere in the country.

"There is an urgent necessity to find a solution to boundary waters pollution, and the prime responsibility for finding the solution rests, we believe, with the Province of Ontario and the municipalities."

This was written March 24th, 1955. Exactly two months later, Mr. Frost replied, stating that the Ontario municipalities concerned "have been advised that remedial measures must be taken to minimize pollution. Many of them have had detailed engineering plans prepared, and others have them in course of preparation.

"The problem, of course, extends far beyond those municipalities located on the international boundary waters. It includes many of the communities inland. For instance, representatives of the Government have recently had discussions with the communities in the Grand River Watershed, and it is expected that plans will be brought into operation providing for more complete sewage treatment. Our officials are constantly pointing out to the municipalities concerned the need for full treatment sanitation. As a result of these efforts, many of these municipalities are facing up more realistically to requirements."

"While the larger urban municipalities located on the boundary waters present the most obvious points for the adoption of remedial measures, it must be recognized that the pollution which ultimately finds its way into the Great Lakes has its origin in widely scattered sources, and it would not be satisfactory, nor would it be equitable to the municipalities, for the Province to provide remedial measures in some communities and not for communities elsewhere in the Province where the need may also be urgent. For this reason, and also because one of the biggest causes of pollution is industrial waste, we regret that you have concluded that the abatement of pollution cannot be considered within the purview of Federal-Provincial fiscal arrangements. We, however, recognize the seriousness of the problem, and we will do what is feasible to bring about an abatement of this problem."

OWRSC Report to St. Laurent

Next December 14th, Mr. Frost forwarded to Mr. St. Laurent what he termed a summary of findings of the Ontario Water Resources and Supply Committee which had been set up in the interim between this and the May 24th communication. This summary came under the heading "Water and Sewerage Needs for Ontario, 1955-75."

(This memorandum first was presented to the Ontario Treasury Board on December 13, 1955, following which Mr. Frost sent a copy of it to Mr. St. Laurent. It then was used as an Appendix to Ontario's submission to the Royal Commission on Canada's Economic Prospects. Its use in this connection was referred to by Lieutenant-Governor L.O. Breithaupt in the January 31st, 1956, Speech from the Throne at the opening of the 2nd Session of the 25th Parliament of Ontario.)

Mr. Frost drew Mr. St. Laurent's attention to the estimate in the report summary that it would cost Ontario nearly \$2½ billion during the next 20 years to meet these needs. When this was considered with other fiscal matters, Mr. Frost wrote, "you will see the urgent need of revenues and flexibility of position on the part of the Province. It will also make even the figures discussed in our Federal-Provincial conferences look pretty small."

Mr. St. Laurent's next letter, dated March 7th, 1956, appeared to bring to a close that particular phase of exchange between the heads of the Federal and Provincial governments in relation to the water pollution problem. However, prior to that date, Mr. Frost had introduced into the Ontario Legislature, on February 23rd, Bill No. 98, "An Act to establish the Ontario Water Resources Commission."

Prime Minister St. Laurent's letter of March 7th:

"It was good of you to send me with your note of December 14th a copy of the memorandum on Water and Sewerage Needs for Ontario, 1955-75.

"I do not know enough about the substance of this problem not the technical difficulties to make much comment on it, except to recognize that here is a field where one can see serious problems in growth. Nevertheless, since you have stressed the financial aspects of this, I would venture a comment or two on that, since undoubtedly it troubles you in connection with your relations with us. "

"I would think that the ultimate financing of both water and sewerage requirements could, and probably should, take the form of charges for water which reflect the cost of bringing it to the consumer in a proper condition and the cost of taking it away and disposing of it in the sort of condition in which it can properly be disposed. From what I have been told, there do not appear to be serious objections on any hand to paying the proper cost on a per unit basis for the handling of water in this way. If this were done, it would seem to me it would strike the average person as a very reasonable and sensible way of paying for the services which governments or municipalities or public utilities must provide in this field."



"In the sort of situation you describe, and which is spelled out in greater detail in the memorandum, undoubtedly there must be a great deal of financing to be done in advance of the final payment for water service. This would seem to be an excellent case of truly long-term borrowing, as these works will surely be useful over a great period of years.

"I hope you will excuse my making these comments, but since this water problem looms so large in your own thinking about our fiscal arrangements, I thought these suggestions would not be out of place.

"I have noted with interest the Bill which you have introduced in the Legislature on this matter and it appears to me to be consistent with the ideas underlying the comments made above."

Text of Report Summary

Text of the report summary which was dated December 9th, 1955 -- "Water and Sewerage Needs for Ontario, 1955-1975"-- follows:

Several factors have contributed to the present high demand for municipal water and sewage works in Ontario. The province is in the midst of an unprecedented growth in population and industrial expansion. The concentration of this growth in urban rather than rural sections has intensified the problem. A marked back-log of construction programs resulting from the depression period of the thirties and of the war years has greatly added to the need for water and sewerage utilities. This demand is at an all time high and is expected to continue at a high rate for many years.

### Water Works Needs

The capital expenditure on municipal water works projects for the next 20 years is estimated to be 1.1 billion dollars. This will include water distribution systems, purification plants and supply works of all kinds. It is for new systems, extensions and rehabilitation of old ones, and for bringing water supplies from distant points to the local distribution systems.

Water supply is the prime utility for urban developments and industrial progress. No community can attain modern standards of living or offer attractions for growth and advancement unless it can be assured of an adequate supply of satisfactory water to meet all requirements. Water supply is a key to municipal and industrial progress.

Ontario communities are striving to secure water services. Small centres of 500 population and over are installing new systems, while existing systems are being extended as never before to provide water to expanding urban areas. New subdivisions adjacent to urban communities must have public water works for the protection of health and for good standards of living. The present demand for water is a reflection of the province-wide growth and the recognition of water as a basic need for community growth and welfare.

Water resources adequate to keep up with demand are a major concern today. Municipalities and industry obtain water from underground and surface sources. The latter includes inland lakes and rivers, and the Great Lakes system. Since early days ground water has been an important source for inland areas. The growth of urban centres and the higher demands for water have necessitated additional water supplies to ensure continued growth and prosperity.

Ground water has the advantage of being inexpensive and requiring little treatment. It is favored for small communities. Where large quantities are required the cost is increased by lengthy supply mains. In some parts of the province the quality is impaired by chemical ingredients such as hardness, iron, sulphur or salt. Ground waters are quite inadequate in many places, and means must be adopted to tap other resources.

Inland streams and lakes are adversely affected by the growth of the country. Spring floods are not retained on the land but are carried away quickly, and summer flows are reduced to a trickle. These streams must also carry away community and industrial wastes. These affect the water even if extensive treatment is provided. Algae growths occur, and tastes of various kinds may be difficult to combat.

The average rainfall in Ontario ranges between 25 and 38 inches. If sufficient storage capacity were available to hold this water on the surface or underground where it falls the water supply problem would be greatly minimized. Ontario has taken progressive action in the creation of conservation dams and lakes. These react against floodwaters in the spring and increase the stream flow of summer. In deep storage ponds the water remains cool and algae growths are retarded. Such ponds simulate lakes, and suitable locations for such large areas are few. The present type of storage dam is satisfactory in many ways, and provided there are a sufficient number of these they have great value as water resources. The cost of these storage dams is fairly high, and there is always the probability of having to replace them due to silting unless extensive reforestation and ground cover are provided on the watershed. Long pipe from these impounded water supplies are needed to avoid the effects of pollution in the streams.

Municipalities situated on the Great Lakes have a distinct natural advantage. The supply of water is adequate to suit all needs; the water is cool and attractive in quality. While in Ontario there are many areas where a shortage of water exists most of these are within pipe line reach of these Great Lakes. For example, southwestern Ontario may be regarded as a peninsula jutting out into the Great Lakes, with no point more than 55 miles from one of the lakes.

Pipe lines are costly to install, but the potentialities for growth and development outweigh this. Southwestern Ontario has tremendous possibilities if water supplies can be assured.

Few inland municipalities in Ontario can be said to have adequate local water resources for both the present and the future. Ground water is limited, and there is little inducement for major expansion in population and industry. Some rural areas suffer greatly from water shortage. Wells and ponds go dry in extended dry periods, and livestock suffer. Irrigation water is in short supply almost everywhere at the critical growing period.

In Ontario there are 160 municipalities where there are no municipal water systems for domestic or fire service. These require new systems of supply and distribution and assured supplies of acceptable water. In the larger countries where surface waters are used purification works are required as well as long feeder mains to bring water to the ever-expanding borders of these water areas. This problem grows rather than diminishes.

At present the major water problems are occurring in two ways, one involving supply and the other distribution. The growth in population tends to concentrate in areas adjacent to the larger urban centres. This requires extension of feeder mains from the existing system or a new source of supply. Many new subdivisions are being developed either for residential purposes adjacent to the larger cities or to serve as housing for new industrial developments. In all these cases water requirements are a major concern. This water must come from existing systems, or new intakes, purification works and feeder mains from the Great Lakes or similar sources of supply must be built. At present the greatest problem is involved around these rapidly expanding urban communities.

In addition to these larger centres there are those municipalities which have not been able to obtain water of satisfactory quality or of adequate quantity to permit growth and extension. These places have lower populations, but given adequate water resources there is no reason to think they will not grow rapidly in the near future. Southwestern Ontario is the part of the province which at present is in the most critical condition for water supply.

### Sewage Works Needs

The capital expenditure on municipal sewage works projects is estimated for the next 20 years to be 1 billion, three hundred million dollars. This will include the construction of lateral sewers, trunk lines, sewage purification works and outfall sewers. This expenditure will involve new systems, extensions and modifications of existing systems. Particular emphasis must be placed on the need for sewage treatment to protect streams and to ensure protection of public health.

Sewerage programs have been delayed to a greater extent than water works. It is the general procedure for a municipality to build a water works system first and follow that some years later by sewers. Thus there is a considerable backlog in these municipalities today, and it is expected that municipalities now having water works will embark on the construction of sewers in the next few years. This will provide these facilities to the small municipalities as well as providing services for the rapidly growing larger communities. In the depression years municipalities were unable to finance the construction of sewage works. During the war materials were not available. It was not until 1949 that materials and contractors were available for carrying on these programs at a desirable level. This delay has been felt particularly in sewage treatment, and many municipalities today do not have sewage treatment works even though they have systems of sewers. The program in the next few years must deal with this situation.

In the Province of Ontario there are 262 sewerred municipalities in comparison with 395 municipalities now having water works systems. Likewise there are 69 municipalities operating sewer systems that do not have treatment plants. Many other municipalities need enlargement or reconstruction of existing sewage treatment works. For the construction of sewage treatment plants as well as trunk sewers leading to them an expenditure of approximately two hundred and ten million dollars is required. This will be needed in the next 5 to 10 years. This is separate from the normal extension of lateral sewers for these systems.

Sewerage needs have been greatly accentuated by the industrialization that is taking place in the province. New industries bring greater populations to the urban centres. New municipalities or new areas are coming into existence because of industrialization. All of this means an urgent demand for sewage works. The need for sewers and sewage treatment is second only to the need for water. In many of these communities the local conditions do not make it possible to utilize individual septic tanks, and sewers must be installed at the beginning of the development.



Another factor which creates a wide need for expenditure on sewage treatment facilities is concentration of population in the urban centres which in turn extends these areas far inland from the Great Lakes and major rivers. This means that there is less opportunity for utilizing dilution as natural purification. Accordingly a higher degree of treatment of sewage and all industrial wastes is mandatory. This cost is increased approximately 100% over that for primary treatment. The time has arrived when practically all municipalities unless they are situated on very large water supplies will be obligated to build secondary or complete treatment works at greatly increased cost. This delayed treatment program must be met within the next 5 to 10 years.

In the construction of sewage treatment plants it is always desirable to carry the outfall into a large body of water. Thus, wherever communities are within reach of the Great Lakes or a large river it is essential to build trunk outfall sewers to reach that water for dilution purposes. This is one way of protecting the quality of inland streams. There will be an increasing demand for these major trunk outfalls as the inland centres develop. Industrial wastes also adversely affect this problem in that many of these are difficult to treat, and reliance must be placed on dilution to a great extent. As industrialization expands inland the need for major trunk outfalls becomes more urgent.

Sewerage programs are major problems today in many of the larger centres. When extension of sewers must be carried out rapidly to meet growths in population and industrial expansion sewage treatment works and trunk sewers must keep pace with that development. Thus, as the population concentrates in large metropolitan areas the problem of providing sewage works becomes greatly intensified. This is one of the serious problems today. The other is the need for a higher degree of treatment in those inland municipalities where small streams must be utilized as outlets. Such streams as the Grand River and the Thames River are examples of difficult problems involved because of growth of municipalities and the low flows in those streams during the summer months. The problem of sewage and industrial waste disposal is more acute in southern Ontario than in any other place in the province. It may be expected to continue and to demand heavy expenditures in the near future.

## SUMMARY AND CONCLUSIONS

The intensive development of the province, particularly southern Ontario, has created major problems in water supply and sewage works. It is essential that steps be taken to ensure adequate water resources for the future, and this will require high expenditures on sewage and industrial waste treatment as well as outfall sewers. The expenditures estimated for these projects during the period 1955-1975 has been estimated as follows;

(a) Water works projects	-	\$1,100,000,000
(b) Sewage works projects	-	<u>\$1,300,000,000</u>
Total	-	\$2,400,000,000

Probably 60-65% of these expenditures will be required in the next 10 years if these programs are to go forward as they should and keep pace with the changes that are taking place in the province.

(End of Report Summary)

Mr. Gathercole was Mr. Frost's adviser in the exchanges with Mr. St. Laurent. In fact, it was the Provincial Economist who came up with the idea of the creation of a committee to investigate the problem and report to the Ontario Government. He suggested that if Mr. Frost did nothing more than establish a committee patterned after the 1905 committee which investigated the hydro electric situation at that time, such a move would serve a very valuable purpose.

Later, Mr. Gathercole was asked by the Prime Minister to investigate the situation and suggest names of some persons suitable to serve on such a committee. While pursuing this, he was informed by an American authority with whom he had been in touch that the Ontario Government had within its own set-up one of the foremost authorities in North America, probably the world, in the person of Dr. A.E. Berry, Director of the Department of Health's Division of Sanitary Engineering.

After consultation with Dr. Berry, Mr. Gathercole presented Mr. Frost with three names -- Messrs. Snider, Vance and Conklin. At that time he remarked he believed Messrs. Snider and Vance were Liberal in their political persuasion -- wondering, no doubt, how Ontario's Progressive Conservative leader would react.

Mr. Frost replied he couldn't see any harm in such a situation as long as the persons concerned were capable and were conversant with and interested in Ontario's water resources problems. The Prime Minister added that he, personally, had numerous friends who were Liberals.

## WATER SAGA

### PART III

When Prime Minister Frost, on February 23, 1956, introduced Bill 98 -- "An Act to establish the Ontario Water Resources Commission" -- in the Legislature, he remarked he hoped A.M. Snider, the Committee chairman, would take over leadership of the new Commission. Following private talks, Mr. Snider assented, but it was not until May 3rd that he and four other commissioners were appointed officially. The Bill, in the meantime, had received second and third readings in the Legislature, the third on March 14th. It was given Royal Assent March 28th.

#### Transition from Committee to Commission -- Snider Chairman

The transition from Committee to Commission was eased by the appointment of Mr. Snider and the naming of J.A. Vance and W.D. Conklin, two other Committee stalwarts, as commissioners. Two newcomers, Mayor Robert Simpson of Arnprior and W.H. C. Brien, Q.C., of Sault Ste. Marie, a former mayor of that city, also were appointed to round out the first ruling body of the Ontario Water Resources Commission.

The setting up of the Commission was well received in political and other interested circles, with press comment also generally favorable. Mr. Snider's appointment as chairman led to many personal tributes -- including one which suggested he might become "the Sir Adam Beck of our time". The late Sir Adam was founder and first chairman of the Hydro Electric Power Commission of Ontario, and it was Mr. Snider's grandfather, E.W.B. Snider of St. Jacob's, who worked closely with Sir Adam and played a prominent part in the setting up of Hydro. In fact, he had first experimented with the production of electricity from water power at the turn of the century.

During all discussions between those interested and in reports prepared prior to and during the life of the Water and Resources Supply Committee, and during the new Commission's organizational period, it was obvious that southwestern Ontario was the area most requiring attention in the matter of water supply, with the most favored sources being the Great Lakes. The obvious means of distribution would be pipelines.

Ground water sources in this section of the Province were unable to meet the continually increasing demands of urban, industrial and agricultural users. Such demands caused water tables to fall and resultant difficulties presented a real danger to the economic and physical health of the area and its people.

This was obvious in Committee thinking and it carried over to the Commission as it began its activities.

The first Commission meeting was held in Toronto, May 17th, at 67 College St., the old Hospital for Sick Children building which had been taken over by the Ontario Government and turned into office accommodation. The particular space used was that formerly occupied by the Committee.

#### First Staff Appointed

It was at this meeting that Dr. A.E. Berry was appointed Commission general manager and chief engineer, and Brian Larmour was named secretary. The latter had been secretary of the now-defunct Committee since the previous February. Dr. Berry, world-renowned sanitary engineer and director of the Ontario Department of Health's Division of Sanitary Engineering, was to continue in the latter post, as well, for another year. He had been serving the Committee as a technical adviser as had J.D. Millar, a deputy minister with the Department of Public Works, who, incidentally, was reappointed in the same capacity by the Commission.

Hon. William Griesinger, Minister of Public Works, was in attendance at the initial meeting. He had been designated by the Government as the minister to report to the Cabinet on behalf of the Commission. He made available to the Commission legal and accounting services of his department and announced suitable quarters would be assigned for its use.

Engineering studies prepared at the request of the Committee were considered at this meeting and others arranged by the Committee were ordered carried on. Thus, the takeover from a purely investigative Committee by a Commission empowered to do more than just investigate became an active fact at that May 17th meeting.

Program of Activities

The commissioners at this inaugural meeting also approved of a program of activities which was ordered inscribed in the minutes of the meeting as follows:

1. Intensive investigation of all available water resources, including ground and surface waters -- conservation lakes, inland rivers, streams and the Great Lakes. Continuation and extension of the research work being carried on by the Department of Mines.



2. Provision for laboratory and research facilities on water, sewage, industrial wastes and other pollutants. This is essential to ensure protection of water resources and to develop methods for waste disposal. Experimental station of the Department of Health now provides these facilities in part. The Department has an item in its budget for a new station. This activity is definitely separate from routine bacteriological analyses made by branch laboratories of the Department of Health.

3. Approval of plans and specifications for water and sewerage projects. Necessary for uniformity throughout the Province and to ensure that new projects have advantage of all that's latest and best.

4. Supervision over all water and sewerage works. This, of course, would not interfere with routine bacteriological tests by the Department of Health. This is part of the program to assure protection of water resources, and there would be close co-operation between the Department of Health and the Commission in this matter.

5. Special supervision over boundary waters to comply with requirements of the International Joint Commission.

6. Supervision over all industrial waste treatment -- to help control pollution and to provide protection of streams and water courses.

7. General supervision over stream sanitation -- necessary to determine acceptability of water resources for different uses.

8. Training program for water and sewage works operators -- to improve efficiency by merit ratings and awards.

9. Educational program for promotion of water and waste treatment installations.

10. Activities of Pollution Board (Water Pollution Control Board) which should co-ordinate interests of all departments in pollution control.

11. All the unfinished activities listed in the Terms of Reference of the Ontario Water Resources and Supply Committee.

12. All of the functions listed in Section 10, Bill 98, The Ontario Water Resources Commission Act, 1956.

This particular section of the Bill stated --  
It is the function of the Commission and it has power:

- (a) to develop and make available supplies of water;
- (b) to construct and operate systems for the supply, purification and distribution of water or the disposal of sewage;

(c) to enter into agreements with respect to the supply of water or the disposal of sewage;

(d) to conduct research programs and to prepare statistics for its purposes;

(e) to perform such other functions or discharge such other duties as may be assigned to it from time to time by the Lieutenant-Governor in Council.

Another section -- 14 -- stated any municipality may apply to the Commission for the transmission to the municipality of a supply of water for the uses of the municipality and its inhabitants and "the Commission may thereupon furnish to the municipality.

(a) estimates of the cost of providing the supply of water applied for;

(b) a statement of the terms and conditions upon which such supply of water can be transmitted and supplied; and

(c) a form of contract to be entered into between the municipality and the Commission for such supply of water.

In this connection, the Commission was given permission to transmit and deliver to the municipality a supply of water in accordance with the terms of the contract as soon as such a municipal-Commission contract was executed.

The section went on to state that---

Included in the unit price payable by a municipality to the Commission under such a contract, was to be an amount representing the municipality's proportion of the following charges:

1. Interest at the rate actually paid by the Commission upon the moneys expended by it on capital account in the construction or purchase of works constructed or acquired for the purpose of carrying out its obligations under the contract.

2. A sum sufficient to form in such number of years as may be fixed by the Lieutenant-Governor in Council a fund sufficient to pay the cost of the works involved.

3. The cost of operating, maintaining, removing and insuring the works, and

4. The cost of administration of the Commission.

Application of this particular section 14 was carried over to the ensuing section 15 which extended its terms to applications and contracts in respect to disposal of sewage and where a person was applicant for a contract.

While the legislation authorized the Commission to enter into agreements with municipalities and persons for the design, construction, financing and operation of water and sewage projects, it was necessary to devote much study to basic forms of agreements for this purpose. Thus, completion of agreements was delayed in order to develop full development of the procedure.

It was agreed financing of projects to be undertaken by the Commission required careful examination. It also was decided that these works might be paid for over lengthy periods of time -- approximately 30 years, and that every effort would be made to obtain the lowest interest charges for the municipalities involved in the projects.

It is interesting to note that the Commission received 46 enquiries from municipalities up to the end of 1956, 13 in regard to water projects, 31 sewage and two for combined water-sewage projects. Most of these eventually wound up in the Commission fold, with only a few deciding to handle the financing and construction of the proposed works on their own.

The Commission's staff at the start in May 1956 consisted of Dr. Berry, Mr. Larmour and the latter's secretary. Dr. Berry, however, continued as director of the Department of Health's Division of Sanitary Engineering and, from time to time, others in that division were also involved in Commission activities.

A.K. Watt, a geologist with the Department of Mines, similarly became involved with the Commission. Finally, at a meeting of the Commission on March 27, 1957, a resolution was adopted appointing to its staff, as of April 1st, 25 persons from the Division of Sanitary Engineering, including Dr. Berry and six from the Department of Mines, including Mr. Watt. It was on April 1st that Dr. Berry severed his connection with the Department of Health and assumed full-time duties with the Commission.

This resolution of the Commission, taking staff from the two departments, was given official status through a Government Order-in-Council dated April 11th.

### The 1957 Act

Also, on April 3rd the Commission started operating under its new Act -- "The Ontario Water Resources Commission Act, 1957" -- legislation which gave breadth and scope to OWRC activities and put some teeth into its powers. It superseded the 1956 legislation. Now, the Commission was set to chart a course directly concerned with the management of Ontario's water resources -- particularly in regard to the supply and distribution of water and the problem of water pollution.

It is interesting to note Chairman Snider had reported to the Commission's meeting on November 20, 1956, that discussions had been held with Government officials concerning the details of financing OWRC projects and the adequacy of the 1956 legislation in connection with the conclusion of agreements with municipalities in the construction of water supply and sewerage works.

The minutes of that meeting recorded that "considerable changes were going to be necessary in the wording of the Act and yet it would be some time before these changes could be effected. The ambiguity of the present Act might tend to show up the program of the Commission and the existing tight money market was a further restricting factor."

To help start the program made possible under the new Act, the Commission had a staff of 36. The Department of Public Works provided office space in the East Block (Whitney Building) with Dr. Berry retaining the same room he had been using when he was with the Department of Health. Also assimilated was the Division of Sanitary Engineering's Experimental Station in the western section of downtown Toronto. This was an ancient building used for laboratory and other purposes. However, the Department of Public Works by this time had developed plans for a new laboratory for the Commission to be located in the northwest section of Metro Toronto in the Township of Etobicoke.

It should be noted that the transfer of staff from the departments of Health and Mines had been verbally approved by Prime Minister Frost when he was present at the second meeting of the newly formed Commission on June 5, 1956, held in the Government's Council Chamber. At the same time he had proposed that a cabinet committee be set up to assist the Commission. He suggested it could meet at intervals with the commissioners. Thus the objectives of the Commission could be achieved with maximum assistance, the Prime Minister said.



However, it was not until November 28th that the minutes of a Commission meeting recorded that such a committee had been set up, under the chairmanship of Col. Griesinger, the Minister of Public Works.

The new, 1957, Act absorbed a number of sections from the Public Health Act which was administered by the Department of Health. These dealt with items pertaining to water and sewage works.

In detail, the Act stated " it is the function of the Commission and it has the power.

"(a) to control and regulate the collection, production, treatment storage, transmission, distribution and use of water for public purposes and to make orders with respect thereto:

"(b) to construct, acquire, provide, operate and maintain water works and to develop and make available supplies of water to municipalities and persons:

"(C) to construct, acquire, provide, operate and maintain sewage works and to receive, treat and dispose of sewage delivered by municipalities and persons:

"(d) to make agreements with any one or more municipalities or persons with respect to a supply of water or the reception, treatment and disposal of sewage;

"(e) to conduct research programs and to prepare statistics for its purposes; and

"(f) to perform such other functions or discharge such other duties as may be assigned to it from time to time by the Lieutenant-Governor in Council."

The Act prohibited discharge of polluting materials into "any well, lake, river, pond, spring, stream or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of such well, lake river, pond, spring, stream or other water or watercourse is guilty of an offence and on summary conviction is liable to a penalty of not more than \$1,000 or to imprisonment for a term of not more than one year, or to both."

This is one example of the "teeth" in the Act. Provision was made for examination by the Commission of all plans of municipalities and others for construction of new or extension of already existing water and sewage works. It was given the power to direct any changes in these plans deemed necessary in the public interest.

Also, every municipality failing to do "every act and thing in its power to implement a report" of the Commission in regard to construction, maintenance and operation of water or sewage works would, on summary conviction, be liable to a penalty of \$500 for every day upon which the default continued after receipt of the Commission report.

Further, the Commission was given the right to use the waters of any lake, river, pond, spring or stream as deemed necessary for its purposes.

The Act outlined in some detail procedures necessary and permissible in Commission-municipal relationships in the matter of supplying municipalities with water and sewage works. Financial arrangements between the Commission and the municipalities in connection with such projects also were outlined, as were the powers granted both parties to make such agreements with each other.

The Commission was granted land expropriation powers as well as the right to supervise well drilling operations and to licence Ontario's well drillers. This latter item had been a responsibility of the Department of Mines.

### Construction Program Starts

The program involving construction of OWRC-municipal water and sewage works projects really got underway in 1957, after the period of organization, investigation and policy making in 1956.

The 1957 annual report of the Commission revealed it had entered into 21 agreements with 18 municipalities. These involved 15 projects, 10 water and five sewage, with an estimated total value of \$9,000,000. The year also marked the completion of the OWRC's first construction project, a water system at the Village of Port Perry upon which construction started in July and was completed before the end of the year. Costing around \$62,000 this early OWRC effort consisted of a well, pump and an eight-inch main which was connected to the municipality's distribution system.

#### First OWRC-Municipal Agreements

Port Perry may have been the first Commission project -- water or sewage works -- to be put into operation, but OWRC-municipal agreements had been signed for five other water projects prior to the Port Perry agreement. These were for the Township of Markham in York County, the Village of Frankford, the Village of Bancroft, the Town of Harrow and the Village of Havelock, in that order.

The first six sewage works projects to come under agreement, in order, were for the Township of Toronto in Peel County, the City of Stratford, the Village of Bancroft, the Town of Trenton, the Village of Streetsville, and the Town of Richmond Hill.

It was in 1957, also, that the Commission lost one of its original members, W.H.C. Brien of Sault Ste. Marie died during October. The vacancy was not filled immediately.

## WATER SAGA

### PART IV

As the new legislation came into force in 1957, the Commission began developing an organization which could carry out the program evolving from that legislation. The annual report for that year revealed an organizational set-up which was close to achievement as the year ended. This included five major divisions -- Laboratories and Research, Construction, Sanitary Engineering, Plant Operations and Water Resources. The divisions were subdivided into branches. An accompanying chart showed the Division of Laboratories and Research with five sections -- Laboratory Activities, Stream Sanitation, Industrial Wastes, Research and Purification Processes. The Division of Construction was shown with two branches, Water Works and Sewage Works. The Division of Plant Operations had a similar breakdown, while Water Resources was revealed to have two branches -- Surface Water and Ground Water. Sanitary Engineering, in the chart set-up, had branches involved with Water Works, Sewage Works and Field Activities, with the district engineers coming under the last-named section.

Directly under the General Manager were the Commission Secretary, the Executive Officer, legal services and public information activities.

This organizational plan had not been fully activated by the end of 1957, but a start was made during the year on all programs. The organization as envisaged in the chart became a reality in the early part of 1958. In addition, the Commission began operating with its own solicitor and an Accounting Branch under a chief accountant, thus relieving the Department of Public Works of responsibilities in these directions which it had undertaken at the formation of the Commission.

### Staff Set-up Early 1958

The staff set-up, attained early in 1958, looked like this--

#### ADMINISTRATION

General Manager and Chief Engineer -- Dr. A.E. Berry  
Secretary -- Brian Larmour  
    Executive Officer -- W.S. MacDonnell  
    Solicitor -- N.A. Shepherd  
    Information Officer -- John C. Scott  
    Chief Accountant -- W.M. Ross

#### DIVISION OF CONSTRUCTION

Director -- Allan W. Shattuck

#### DIVISION OF LABORATORIES & RESEARCH

Director -- A.V. DeLaporte  
    Supervisor, Chemical Lab -- C.E. Simpson  
    Supervisor, Industrial Wastes -- F.A. Voegel  
    Supervisor, Purification Processes -- J.G. Duncan  
    Bacteriologist -- L.T. Vlassoff  
    Biologist -- J.H. Neil

#### DIVISION OF PLANT OPERATIONS

Director -- D.S. Caverly

#### DIVISION OF SANITARY ENGINEERING

Director -- G.M. Galimbert  
    Supervisor, Field Activities -- E.M. Johnston  
    Supervisor, Sewage Works -- L.E. Owers  
    Supervisor, Water Works -- K.H. Sharpe  
    Supervisor, Stream Sanitation -- O.V. Ball

#### DIVISION OF WATER RESOURCES

Director -- (Vacant)  
    Supervisor, Ground Water -- A.K. Watt  
    Supervisor, Surface Water -- K.E. Symons



Staff at the end of 1957 numbered 82, and climbed to 139 exclusive of operators of OWRC projects, by the end of 1958. Office and laboratory facilities became restrictive, with such difficulties compounded by a fire which left the laboratories building on Richmond street inoperative. Temporary quarters were found in an old school building at Bay and Wellesley streets. This also was used to house other sections of the Commission. Offices also were located on two other streets, close to the Parliamentry East Block which housed the OWRC head office.

An Information Officer had been appointed in mid-1957. Personnel and administrative services were the responsibility of the Executive Officer under the direction of the General Manager, while the Commission Secretary was closely associated with the legal and accounting activities.

Program Takes Form

The program, other than the part concerned with the construction of works for municipalities which already appeared to be well underway, also took definite form during late 1957 and and early 1958.

While emphasis during the Commission's formative period appeared to centre on the promotion of water and sewerage works for municipalities, other facets of the program were not neglected. For instance, the Minutes of Meeting No. 17 on May 22, 1957, recorded that the General Manager presented a statement of policy with regard to pollution abatement and recommended that this policy be adopted by the Commission. The commissioners then recorded approval of a motion endorsing the policy outlined in the General Manager's presentation -- "Brief to the Commission on Policy in Respect to Pollution Abatement" -- which read as follows:

"It is necessary that a firm policy be adopted in connection with the abatement of stream pollution. Accordingly, I am submitting herewith a brief outline on the matter.

"The new Water Resources Commission Act places responsibility on the Commission for the sanitation of all water courses in the Province. Section 27 gives authority to take into Court any person who discharges any material into any water course and thereby impairs the quality of that water. This section would give ample authority to deal with all cases of pollution, particularly where they are from industry or private parties.

"In the reorganized activities of the Commission regular inspection is being made of all sewage treatment plants. Similar supervision is provided for all industrial waste plants, and the quality of the water in these streams is being checked regularly by the District Engineers and through special surveys. An attempt is being made to trace down all sources of pollution, and much of this work will be carried on by Engineer's Assistants in the different districts. There are obviously a considerable number of these private outfalls which have been permitted by local health agencies. Those local agencies were responsible under The Public Health Act for these private sewage disposal systems. In many places the supervision has been negligible, and a number of conditions have developed which require correction as soon as possible. It is planned to check on all these outfalls as rapidly as possible, and to endeavour to have corrections made promptly.

"If this work is to be effective it will be necessary that these reports be followed up by time limits for correction of pollution. If the work is not completed on the time set, and no reasonable explanation is given the offender should be taken into court under Section 27 of the Act. I would recommend that the Commission adopt a policy of this nature, and that action be taken through the courts wherever this is necessary to obtain the desired results."

The 1957 annual report noted that pollution control activities in the smaller streams had been intensified since the advent of the Commission, with detailed surveys conducted regularly on these streams by staff of the district engineering branch. In all, 129 stream pollution surveys were carried out. A start was made on compiling pollution survey reports on a county basis, with the County of Oxford being completed during the year.

The program aimed at control of industrial wastes got its start in April, 1957, with the beginning of a field study of such wastes throughout Ontario. In all, during the nine-month period, 130 industrial waste investigations were carried out. These involved those of interest to the Commission only, while an additional 85 were carried out on behalf of the International Joint Commission. In this latter work, the Commission was carrying on a co-operative practice set up by the Department of Health prior to the advent of the OWRC. These investigations for the IJC were carried out in boundary waters.

### First Court Action

It didn't take the Commission long to take court action against an industry. In this instance a tannery was charged because it failed to carry out its assurances it would take corrective measures after it had been taken to task for unsatisfactory waste disposal practices. The firm was the Beardmore Tannery at Acton in the County of Halton.

This matter was first investigated subsequent to objections to the firm's actions heard at a Commission public hearing in Brampton, in July, 1956. The stream concerned was Black Creek which flows into the Credit River. Following this, the Commission Chairman and some of its officials had personally inspected the firm's waste treatment facilities and had been assured by the management that unsatisfactory practices previously carried out would not be repeated in future.

However, at its meeting on May 22, 1957, the Commission was informed the promised improvements had not been carried out and this was backed up by figures for analyses of water in the affected portion of Black Creek. It was then decided to prosecute.

Finally, before Magistrate K.M. Langdon at Milton, the Beardmore Tannery pleaded guilty to the charge of polluting the Black Creek. Sentence was suspended when the tannery agreed to work with the Commission in an attempt to solve the firm's waste disposal problem.

(Under the Act, conviction on such a charge could carry a maximum penalty of \$1,000 or to imprisonment for a term of not more than a year, or both. It was Commission policy from the beginning to work with industries really desirous of doing something about waste treatment problems, so in ensuing years court cases in this instance were held to a minimum. It was apparent most industries were willing to co-operate. In October, 1967, however, a Windsor magistrate's court recorded a conviction and the first maximum \$1,000 fine for a water pollution offence. The Essex County Cannery Limited was found guilty on three charges of polluting open ditches leading to the Canard River. The previous April it had been fined \$100 on a similar charge by the same magistrate, J.R. McMahon.)

In 1958 the Industrial Waste Branch stepped up its important function of providing technical consultative service to the Commission and to industry on the quality and quantity of waste discharges and to recommend methods for removal of objectionable characteristics before disposal to receiving wastes or to municipal sewerage systems. That year, much of the branch effort involved the surveying of industries located in areas where projects were being undertaken by the Commission.

It was at the beginning of the same year that a Division of Plant Operations was set up under the direction of D.S. Caverly who had come over the previous April as Supervisor, Sewage Works, from the Health department's Sanitary Engineering division.

This new division began to expand staffwise almost immediately and continued as OWRC construction projects were completed and turned over to it for operation. Besides administrative staff at headquarters, personnel to operate the completed projects were hired.

At the time this new division was set up on January 1st, water works at Sunderland and Havelock were just about completed and in service, while Port Perry's system had started operation in 1957.

By the end of the year, nine other water projects had been put into operation and five sewage works. Some of the works involved required little or no day-to-day operation supervision, but the Division of Plant Operations set up an inspection routine in these special cases. For instance, the project at the Town of Essex was an elevated water tank, in the Township of Korah a trunk sanitary sewer and in the Town of Dundas feeder watermains and a reinforced concrete reservoir.

An early successful feature in the case of the operation of plants was the setting up of local advisory committees in the municipalities involved in such projects with the OWRC. These committees and Division of Plant Operations personnel worked closely and co-operatively in regard to many aspects of operation of the particular projects involved.

Stratford Initial Major Sewage Project

The first major project as far as sewage treatment was concerned was at Stratford. This also occasioned the first official ceremony to be engaged in by OWRC officials. On July 25, 1957, Chairman A.M. Snider and Dr. A.E. Berry, general manager, assisted Mayor Fred Cox in turning the first sod for the project which involved a four-million-gallon-per-day sewage treatment plant using the activated sludge process and including sludge digestion. Less than one year later, June 1958, the plant was completed, the first such project to be put into operation under OWRC auspices.



This early milestone in Commission history and in OWRC-municipal relations was marked by an official opening two months after its completion with Prime Minister Leslie M. Frost officiating along with Commission Chairman Snider. It will be remembered that it was Mr. Frost's personal interest which led to the founding of the Commission.

#### Early Pipeline Projects

The first pipeline a four-mile project for the Town of Harrow in Essex County, consisted of a supply works on Lake Erie in the Township of Colchester South, and a distribution system in the municipality. This was completed in July, 1958.

The same year construction was well underway on a much larger pipeline project -- embracing the towns of Leamington and Essex; the townships of Maidstone, Mersea, Gosfield South and Gosfield North all in the County of Essex, as well as the H.J. Heinz Company of Canada, Ltd., in Leamington. When completed, this multi-million-dollar project (\$3,860,000) consisted of a Lake Erie intake and pumping station just south of Ruthven, a 24-inch raw water supply main to the treatment plant at Ruthven, some 28 miles of watermain varying in size from eight inches to 30 inches, a booster pumping station on the 12-inch main between the treatment plant and the Town of Essex, a 250,000 - gallon elevated storage tank in Essex, and a 33,000-gallon elevated storage tank between Ruthven and Leamington.

The treatment plant, with a high-lift pumping station, had an initial capacity of 8,000,000 gallons per day and was designed for expansion to a maximum of 32 million gallons daily. The filtration plant was most modern in every respect and was totally automated.

The project went into partial operation in August, 1958, supplying chlorinated but unfiltered water to the Heinz plant in Leamington and to the Town of Essex. This was an emergency move necessitated by the immediate lack of water in the Leamington -- Essex area.

The entire project was completed in 1960 with an official opening taking place on Friday, November 18th, thus culminating an effort which began when the OWRC stepped in to help a parched area of southwestern Ontario. Jointly officiating at the ceremony held in the filtration plant building were Hon. William K. Warrender, Q.C., Minister of Municipal Affairs, and Hon. William Murdoch, M.P.P., Speaker of the Ontario Legislature. It was Mr. Murdoch, representing Essex South constituency in the Legislature, who did much to attract government attention to the plight of the water-scarce area. He was particularly active in this regard prior to the formation of, and during the life of, the Ontario Water Resources and Supply Committee.

It was the scarcity of water in southwestern Ontario which resulted in the setting up of the Committee, the findings of which, in turn, resulted in the formation of the Ontario Water Resources Commission. It was only basic that in the matter of water supply this area received first attention of the Commission.

Chairman Snider at the official opening remarked that the project was a "monument to successful co-operation between the municipalities concerned." As a result of such co-operation, he added, "water no longer is a limiting factor to progress" in an area which had been blighted by water shortages for many years.

The OWRC chairman also said that once all agreements were signed in 1957, the Union Water System in Essex County became the OWRC's most urgent project.

Designed by C.G. Russell Armstrong, Windsor consulting engineer, the works received international recognition as being most advanced in design. Once on his return home after visiting the project, British engineer wrote that "the whole conception of the plant is certainly most advanced and rarely to be exemplified in this country or, I think, the U.S.A. It is a fine example of the practical interpretation of modern research."

### Brantford Sewage Project

The same year, 1960, marked the completion of the Commission's largest sewage treatment project at Brantford -- a complete activated sludge treatment plant with vacuum filtration of digested sludge and a capacity of 12 million gallons daily. The plant cost \$2,250,000 and marked a big step forward in the Commission's program aimed at cleaning up the Grand River. Consultants in the project was Proctor & Redfern of Toronto.

This program so far had involved the building of sewage treatment plants at Waterloo and Fergus. Kitchener's program was well advanced by the time the Brantford project was officially opened on September 7th, and plans for Paris were well underway. A plant for Preston was being designed and one at Hespeler was being enlarged. In addition to these joint OWRC-municipal projects, Guelph built a plant on its own, and Galt had one in the planning stage.

It was estimated operation of all these works would cut the flow of pollution into the Grand by many millions of gallons per day.

The year 1960 stands out in Commission history, not only because the Essex Union water system and the Brantford water pollution control project were put into operation, but also because of two important changes in facilities. The new laboratory and research building came into service in the early months of the year and the rest of the staff was united and moved into a building at the corner of Bay and College streets--the same building which housed the minister and the staff of the Department of Municipal Affairs.

The Commission's departmental affiliation had been transferred on March 31st of that year from the Department of Public Works to Municipal Affairs, the minister of which was Hon. William K. Warrender Q.C.

The 1960 annual report noted that particular emphasis was placed during the year on pollution abatement and the conservation of water resources. Surveys, chiefly on a county basis, were increased in an effort to detect sources and kinds of pollution. The report also noted that since the Commission came into existence, 80 sewage treatment plants had been built to serve a population of one million and 17 more under construction, would serve an additional 450,000 persons. All these works were not OWRC projects, but many of those which were carried out by municipalities themselves probably resulted because of OWRC example and urging.

The Commission's growth by this time was well reflected in the 1960 report--the fifth annual--which revealed staff had increased from 167 at the end of 1959 to 214 at the end of 1960. In addition there were 92 operators of OWRC-municipal water and sewage projects.

It also was during 1960 that Commission Secretary Brian Larmour resigned and was replaced by W.S. MacDonnell who had been chief Executive Officer since early 1957.

## WATER SAGA -- Part V

During the 1960s, the Commission continued to expand both upward and outward as it was assigned or instigated additional programs in many phases of its work. Its very size and complexity of some of the new programs as well as continued difficulties with some of the older phases of its activity, combined to create problems.

This made necessary from time to time major changes in the Commission's administrative and operational set-ups--the adoption of new organizational patterns.

### Three New Divisions Established

For instance, in 1963, the Division of Research became more than just a name. It had been established in 1961, but was not activated until it had been provided with a director and a staff, the latter obtained chiefly from the former Purification Processes Branch of the original Division of Laboratories and Research. The Commission laboratories then continued operation under their own divisional set-up.

In 1965, two additional divisions were found to be necessary. The pressure and mounting problems in the field of industrial wastes caused the creation of a Division of Industrial Wastes. This involved the transfer from the Division of Laboratories of its Industrial Wastes Branch and the employment of additional technical and administrative staff. The other new section was the Division of Project Development, created to bring under one administrative roof the handling of Commission-municipal projects through all negotiation and planning stages. This became necessary especially since the Commission had started expanding more and more into large area or integrated projects.

This latter new division included the former Project Control section which was responsible for many phases of municipal project work and the former Real Estate Branch which handled all property negotiations in connection with all such projects.



### Administrative Changes

The changing picture in the top administrative level began in 1961 with the appointment of two assistant general managers -- D.S. Caverly and G.M. Galimbert, directors, respectively, of the divisions of Plant Operations and Sanitary Engineering, and L.E. Owers as Executive Engineer. These appointments were intended to ease the growing load on Dr. A.E. Berry, the Commission's original General Manager and Chief Engineer.

In 1963, Dr. Berry's retirement necessitated further changes. Mr. Caverly took over as General Manager and Mr. Owers replaced him as an assistant general manager. Mr. Galimbert retired in 1965 following which areas of responsibility in the matter of technical operations were outlined in four categories.

This was followed by the appointment of three new assistant general managers. The newcomers were K.H. Sharpe, former director of the Division of Sanitary Engineering, who was made responsible to the General Manager for the divisions of Sanitary Engineering and Industrial Wastes; F.A. Voegel, former director of the Division of Laboratories, responsible for the divisions of Laboratories and Research; A.K. Watt, former director of the Division of Water Resources, still responsible in his new position for the activities of that division as well as other associated duties. Mr. Owers continued his responsibility for the divisions of Project Development, Construction and Plant Operations.

All personnel involved in these top level shifts had been with the Commission since its active start in 1957, Messrs. Owers, Sharpe and Voegel, all engineers, coming, together with Dr. Berry, from the Department of Health, and Mr. Watt, a geologist, from the Department of Mines.

Death of First Chairman -- Vance Appointed

In 1964, the Commission's first Chairman -- A.M. Snider of Waterloo -- died, to be replaced by Dr. James A. Vance of Woodstock, another original commissioner. In fact, both Mr. Snider and Dr. Vance had been members of the Ontario Water Resources and Supply Committee, the forerunner of the Commission.

Thus within a space of 18 months the Ontario Water Resources Commission lost the services of its first Chairman and its first General Manager and Chief Engineer through death and retirement, respectively.

The Commission's departmental affiliations -- connection with a department through the Minister of which it reported to the Ontario Government -- changed twice during the 60s. The original such affiliation was the Department of Public Works and this lasted until March 31, 1960, when it was transferred to the Department of Municipal Affairs headed in turn by Hon. William K. Warrender, Q.C., Hon. Frederick M. Cass, Q.C., and Hon. J.W. Spooner. On May 1, 1964, the OWRC was switched to the Department of Energy and Resources Management headed by Hon. John R. Simonett.

In the four years the Commission was affiliated with the Department of Public Works, the Ministers were Col. Hon. William Griesinger, Hon. James N. Allan, and Hon. T. Ray Connell.

Review of Highlights of the 60s

Other highlights of the 1960s could include --

1960 -- The Federal Government entered into the Canada-wide fight against water pollution by offering to assist municipalities finance certain portions of sewage treatment works. This federal legislation permitted Central Mortgage and Housing Corporation to loan to municipalities two-thirds of the cost of such projects and to forgive 25 per cent of such loans if construction was completed by a certain date.

The Commission welcomed this assistance to municipalities in Ontario, and arranged to finance sections of sewage works not covered under the federal plan, such as storm trunk sewers. It agreed also to finance the remaining one-third of the cost of such projects, since the federal offer involved only two-thirds of such costs, and to act as agent for municipalities interested in dealing with CMHC in this matter.

First major conference of its kind to be sponsored by the Commission -- the Ontario Conference on Coordinated Water Pollution Control -- was held in Toronto late in 1960. It attracted a large attendance. The following year a similar large gathering participated in an OWRC-sponsored Conference on Water Quality Management. Other meetings organized by the Commission at various times, but on a smaller scale, included among other topical subjects, those involved with the management of wetlands, detergents and problems created by growth of algae in various waterways, particularly the Great Lakes.

Private meetings were held with representatives of the detergent industry in regard to the desirability of the industry developing detergents which could be more readily assimilated by sewage treatment systems and which would provide less nutrients for growth of undesirable aquatic plants, such as algae.

1961 -- Introduction of the permit system for water-taking in excess of 10,000 gallons per day.

The first public tender opening. Heretofore, tenders for construction of OWRC-municipal projects had been opened in private by the Commission's Tender Opening Committee.

The end of 1961, fifth year of Commission active operation, revealed water and sewage projects in which the OWRC was involved totalled 192--93 water and 99 sewage, involving 146 municipalities. Of these, 109 were in actual operation and being supervised by the Division of Plant Operations which was not set up until the beginning of 1958. These totals by the end of 1962, had reached 239 projects, 105 water, 134 sewage, with 172 municipalities involved -- and 155 in operation.

At the end of 1968, such projects in operation under the supervision of the division totalled 313 -- 131 water and 182 sewage.

1962 -- An amendment to the OWRC Act made it illegal to apply any substance to water for the purpose of controlling an aquatic nuisance without first obtaining permit authority from the Commission. This was to guard against improper use of algicides, pesticides, herbicides and other similar preparations. Unrestricted use of such items could contaminate public water supplies and kill fish and other approved aquatic life.

It was the water supply problem in southwestern Ontario which first focused attention on Ontario's water resources and inequalities in distribution. So, the putting into operation in 1962 of an integrated system involving four Lambton County municipalities -- Petrolia, Waterford, Wyoming and Plympton -- served to further alleviate a bothersome situation.

1963 -- Following the retirement of Dr. A.E. Berry, OWRC's first General Manager and Chief Engineer, the Commission set up a Management Committee of three members -- the Chairman and two commissioners -- to facilitate Commission business between regular meetings of the Commission.

This was the year the Division of Research was activated. Such a division had been announced some time previously, but it was not until 1963 that it was in reality separated from the Division of Laboratories. This new section gradually assumed responsibility for then current research projects -- algae control studies by the Biology Branch and a canning wastes study at Chatham, and a new one -- a study of oxidation ditches. Decision also was made to test a tertiary treatment lagoon system through the building of a pilot plant at Brampton.

Algae research was expanded in Lake Erie and Lake Ontario, while at the same time the Lab's Biology Branch was testing the effectiveness of various algicides.

A 1963 amendment to the Act allowed the Commission to "define an area that includes a source of public water supply". This permitted the OWRC to set out boundaries for an area which included such a source in order to protect that supply from possible contamination by any use or act. Further, no undue diminishment of the amount of water available would be allowed.

Lake Huron Pipeline Project Announced

1964 -- This was the year the water problems of the City of London were solved by the Ontario Government's offer to finance a pipeline, through the Commission, from Lake Huron in the vicinity of Grand Bend to London for the benefit of that city and water-scarce communities on the pipeline's route. Construction was started on the 30-mile long project late in 1964 and water was first delivered to London in the summer of 1967.

The clearing of the way for OWRC to take over the project from the London Public Utilities Commission which had been planning to carry out on its own the construction of the pipeline also opened the way for the Commission to undertake to build and operate similar projects in areas where water supply was inadequate. As was planned with London, municipalities served by other pipelines would be supplied with water at a price sufficient only to meet construction and operating expenses.

## Great Lakes and Northern Ontario Assignments

1965 -- The Commission undertook two special assignments, both long-range projects. These involved a special co-ordinated Great Lakes pollution investigation organized as a result of a late 1964 reference from the governments of Canada and the United States to the International Joint Commission, and an inventory of the water resources of northern Ontario.

The latter project was undertaken jointly by the Ontario and Federal governments and was to include a study of the feasibility of making better use of northern Ontario's water by diverting it from one basin to another. Involved were the five main river basins of the area -- Severn, Winisk, Attawapiskat, Albany and Moose, an overall area of approximately 173,000 miles. Study of area economic potentialities and the link of such potentialities with water resources also was scheduled.

It also was in 1965 -- August 6th -- that Prime Minister John P. Robarts announced extension of the policy established in 1964 in regard to the London pipeline project to involve financing, construction and operation of other water works, and sewage works, too. Capital and operating costs of approved municipal projects could be paid for by the OWRC and recovered through a service charge to users, together with amortization costs over the life of the project. The service charges would be based on actual usage. Thus a new plan -- termed the Provincial Projects plan -- came into being as a measure designed to further aid municipalities in their efforts to meet their water and sewage works' requirements.



## Lake Erie Pipeline Project Announced

The same year, another major water supply pipeline project was announced -- a Lake Erie to St. Thomas line in Elgin County which would serve the townships of Yarmouth and Southwold as well as St. Thomas. There would be water, also, for other municipalities in the area able to utilize supplies from this source. In the official announcement by Prime Minister Robarts which authorized the OWRC to proceed with such a project, utilizing Ontario Government funds, similar to the handling of the Lake Huron Water Supply System, the Grand Bend to London line, it was stated that need for an increased water supply in the area was brought to the fore at that time since the Ford Motor Company of Canada had announced plans for construction of an assembly plant in the area.

One major divisional reorganization within the Commission occurred in 1965 when the original two branches of the Division of Water Resources -- Ground Water and Surface -- were eliminated as such and four new sections set up. These were the Hydrologic Data Branch which would collect and publish basic hydrologic and hydro-geologic data with particular reference to ground and surface waters; the River Basin Research Branch, which, among other things, was to be involved in special research studies on watersheds as well as the operation of geophysical equipment; Surveys and Projects, involved in water resources surveys and water supply projects; and Water Well Management, with two programs, water management particularly dealing with the water-taking permit system, and well-contractor licensing along with well-construction licensing.

The Division became involved in the International Hydrologic Decade Study which started during the year, undertaking to assess ground water resources and surface water runoff in certain areas of Ontario.

It was this division which assumed the Commission's responsibility in connection with the federal-provincial inventory of northern Ontario's water resources.

Provincial Financing Policy Popular  
1966 -- Interest among municipalities in the provision of water supply and sewage treatment facilities on the basis of provincial financing accounted for a major portion of the Commission's expanded program in regard to water and sewage works for municipalities. At the year-end, OWRC had entered into negotiations with 97 municipalities, with projects actually being developed in 84 of these.

Also, at the end of the year, the Commission's Division of Project Development had under development 13 studies for regional water supply systems and three for regional sewage treatment facilities.

The same year the Commission found encouragement in the field of industrial wastes when it was announced that between 1956 and 1966, major Ontario industries had spent an estimated \$110.8 million in capital investment in waste treatment facilities. It was in 1956 that the OWRC was set up.

During the year, the Great Lakes' program spearheaded by the Commission's Division of Sanitary Engineering, was expanded to include a concentrated two-year study to tabulate the quantity and type of domestic, industrial and surface pollution from Ontario which reached the bordering Great Lakes, and the effect these discharges had on the water quality of the lakes. This was an OWRC extension of the program initiated by the International Joint Commission during 1965 and in which the Commission was participating as Ontario's representative.

This extended program saw three Commission watercraft operating on Lake Ontario, Lake Erie and the St. Clair River, with one vessel diverted on two occasions to survey the St. Mary's River which runs from Lake Superior to Lake Michigan.

Further, an aerial surveillance program, experimented with late in 1965 by OWRC as part of the Great Lakes' water quality studies, was increased during 1966. An important part of this particular segment of the work was the use of surface craft in conjunction with the aerial patrols wherever and whenever possible. Samples of pollution sighted from the air could be obtained almost immediately by personnel on the boats.

A special OWRC laboratory was opened in London during the year to assist in bacteriological and chemical analyses required as a result of the stepped-up Great Lakes' program. This supplemented the efforts of the main laboratories in Toronto.

### Controversial Boating Regulation

It was in August of 1966 that the what-was-to-become a controversial OWRC Regulation providing for the control of the discharge of sewage and garbage from pleasure boats into any water was announced. Tossed back and forth between protesting boat owners and organizations and Ontario Government and OWRC officials, the Regulation, with amendments from the original concept, did not come into effect until January, 1969 -- still under protest.

This was the year, too, that the Commission's Personnel Branch for this first time in OWRC's 10-year history extended its university recruiting drive for professional personnel beyond the borders of Ontario. Reorganization and program expansion had created about 40 new positions, more than double the number open at the beginning of 1965. The recruitment project involved graduates in civil and chemical engineering, geology, hydrology, biology, microbiology, chemistry and oceanography.

Work started in 1966 on the Lake Erie Water Supply System, the planned 10-mile pipeline from the vicinity of Port Stanley to meet the water requirements of the City of St. Thomas and sections of the townships of Yarmouth and Southwold, as well as a new plant of the Ford Motor Company of Canada located near Talbotville, a community in Southwold. However, disagreement between the Commission and the City of St. Thomas concerning the charges to be assessed the municipality finally forced a change in project plans with the result that at the end of 1968, the Ford company was the only customer on a modified pipeline set-up. The Commission started pumping unfiltered water to the automobile plant in September of that year.

The matter of a water supply from Lake Erie for St. Thomas had been in the discussion stage even before the Commission came into being in 1956. It was first discussed at a Commission meeting -- its eighth, in fact -- on November 1st of that year, when a delegation from the city's council and its P.U.C. met with members of the Commission to discuss the matter. Leaders of the delegation stressed to the Commission that they definitely were interested in the possibilities of lake water.

At the end of 1968, St. Thomas was still interested in Lake Erie water but the city authorities and the Commission had not yet been able to agree of a price for that water.

1967 -- The annual report for 1967 revealed the number of municipalities with unsatisfactory waste treatment facilities was becoming progressively smaller. The Commission's direct involvement in the provision of such facilities was greatly expanded under the impetus of the system of provincial financing introduced in 1965. By the year-end, 190 provincial programs were in various stages of development. These had an estimated value of \$141.5 million compared with \$61 million at the end of 1966.

The Commission's regular water quality control program was highlighted during the year by the announcement of a new policy regarding water quality objectives which represented an approach to waste treatment more closely related to the particular uses which were being made by a watercourse. This had regard to present and future uses as well as self-purification capacity. Six wastewater assimilation studies were instigated during 1967.

An interprovincial water quality study was started on the Ottawa River with OWRC and the Quebec Water Board participating.

### OWRC "Navy" Active on Great Lakes

The Great Lakes water quality survey was intensified, with the Commission's "navy" employing six vessels to investigate water quality and wastewater diffusion, especially in harbor areas and other areas of heavy water use. This program occupied the services of 100 members of Commission staff, including technologists aboard the survey vessels, laboratory personnel in London and Toronto, computer experts and scientists and engineers engaged in evaluating the data and co-ordinating the program.

A new division within the Commission was set up in 1967 -- the Division of Administrative Services responsible for purchasing, stores and inventory control; systems and electronic data processing and files.

This was the year that OWRC biologists gave hope to those who suffered annually from black flies. Commission experts announced tests revealed a commercial mosquito killer -- known as Abata -- had proven extremely effective in the control of this pest which once a year, early or mid-Spring, was sure to strike many central and northern sections of Ontario. It should be noted that subsequent tests revealed two other insecticides -- Dursban and Methoxychlor -- also had potential for controlling black fly larvae.

First use was made during 1967 of a mechanical water tester -- a robot water quality monitoring device. This unit was installed at the OWRC water pollution control plant at Corunna in the Township of Moore, Lambton County, to continuously measure a number of chemical and physical characteristics of the St. Clair River, and record the data on a strip chart, This was the newest technique used by OWRC engineers in their continuous watch on water quality which, in 1967, involved 330 sampling points across Ontario.

Of the many convictions obtained over the years by the Commission in connection with water pollution charges it laid, it was in October, 1967, that it obtained its first conviction which carried with it the maximum fine of \$1,000. Convicted was Essex County Cannery, Ltd., found guilty on three charges in a Windsor magistrate's court.

Also of interest in 1967 was an OWRC news release which stated the Grand River with some qualification could be called a pollution control success story.



"Reaching deep into the heart of Ontario," the release said, "it (the Grand) was in poor condition when the Ontario Water Resources was formed 10 years ago. Now, thanks to a network of OWRC-municipal water pollution control plants and other control measures, its waters generally are within water quality objectives."

The release also stated that the Credit River, draining into Lake Ontario west of Toronto, "now" was generally well within objectives as well, even as it entered the lake. The Credit, too, once was heavily polluted.

It should be noted that the Grand and the Credit were among the first watercourses to be attacked by the OWRC in an effort to clean up two fine rivers which were fast becoming useless for most human uses because of increasing pollution.

It would appear Commission efforts were successful in these directions, although further investigation of the waters of the Grand were started in 1967 when OWRC opened a river basin study project in connection with that waterway, designed to examine the major factors affecting water quality and use in the basin.

### First Regional Office Opened

1967 was the year the Commission opened its first regional office -- at Kingston in September. The idea of regional offices had been contemplated by the Commission for many years, with the initial thinking being that full control of all activities should issue from the Toronto head office. As time went on, however, it was realized district-based staff would be necessary to properly attend to problems in the area as they arose. The dispatching of staff from Toronto to handle these difficulties was becoming far from satisfactory.

The new Kingston office, for example, was set up with docking facilities to allow the ready dispatch of craft to investigate pollution.

1968 -- During this year the Commission made significant progress in the matter of regional programs to be financed through the Provincial Projects plan, with agreements executed for several such schemes.

### Agreements Signed for Peel County Project

The most notable was the December 17th signing of agreements by the Commission and five municipalities in the southern section of the County of Peel, involving an estimated outlay of \$88 million over a 20-year period for integrated sewage and water works in the area. Involved were the towns of Brampton, Mississauga, Port Credit and Streetsville, and the Township of Chinguacousy. The area was to be supplied with treated water from Lake Ontario and its sewage carried through trunk lines to treatment facilities, also on the lake.

This was OWRC's largest project, with recovery of capital and operating costs to be made through a charge to the municipalities, based on their use of the facilities. Negotiations in regard to this project were started in 1965.

An integrated water supply system for three Essex County municipalities -- Amherstburg, Anderdon and Malden -- was scheduled for a construction start early in 1969.

Following activities initiated in 1967, negotiations with the Civil Service Association representing bargaining units from the head office and plant staffs continued in 1968. Agreement was reached in regard to the head office staff involved, with a Memorandum of Agreement signed July 4th. Negotiations with the plant bargaining unit were more difficult, but following reference of unresolved issues to a mediator, terms of a settlement were worked out providing the basis for a Memorandum of Agreement. This had not been signed by the year-end, however.

It is interesting to note that staff of the Commission at the end of 1968 totalled 1,077, including the head office organization, provincial works and plant operating personnel, as well as 70 casual employees. In 1956 and 1958, these totals were 82 and 139, respectively. This was another distinct reflection of the Commission's growth trend.

### Head Office Relocation Planned

As the year ended arrangements had been completed for the moving of all Toronto-based staff, with the exception of laboratories and research personnel. Those stationed at 801 and 880 Bay street in downtown Toronto were assigned to two buildings on St. Clair Ave., West -- the divisions of Plant Operations and Water Resources at No. 40 and top management and administration as well as all other divisions to No. 135 on the southeast corner of St. Clair and Avenue Road. The entire building at 135 was assigned to the Commission with the exception of a few offices which had been leased to outsiders previously. Water Resources and Plant Operations were to occupy three floors at the other location which was just west of Yonge St.

The move, planned for early 1969, was just another reflection of OWRC's growth, and was to provide all concerned with more spacious, more comfortable and in every way more suitable working facilities.

#### Additional Regional Offices

A second Commission regional office, this time at London, was opened in May. In the same building as the previously established laboratory which had been set up in 1966 to deal with special sampling for the Great Lakes survey work. Several members of staff previously had worked out of London, but under direct supervision from Toronto.

A third such office combining regional office and laboratory facilities was in the course of being set up at the end of the year-- at the Lakehead, in a two-storey building in Fort William. The office actually was functioning at the year-end, but the laboratory facilities were not scheduled for completion until March, 1969.

Laboratory facilities were further strengthened by the addition of a mobile unit during the year. This operated out of the Toronto lab and was used for dispatching to any area where on-site analyses of perishable samples were required.

OWRC Wins Important Legal Appeal

Four corporations were convicted on nine charges of impairment of water during the year. One of these was the result of a successful appeal which led to an important clarification of the law applicable to future prosecutions under section 27 (1) of the Ontario Water Resources Commission Act.

In this particular case, the magistrate found that an offence had been committed but held that there was no evidence to establish that the polluting material had been discharged by the defendant company.

Upon appeal to the county court judge, the latter ruled the Crown had proved that the pollution got into the water as a result of an act of one of the charged firm's employees who had the power and authority to prevent, and could have prevented, but did not prevent. It was ruled further that the company was liable for the act of an employee, because, in this case he was acting within the scope of his employment.

The appeal judge ruled that the fact that pollution had been caused was enough to call for a conviction. This was not a question whether there was a guilty mind -- mens rea -- or intention. The pollution had not been caused openly and definitely, but it had been caused.

This decision had the effect of overruling prior decisions in other and similar cases in other Ontario magistrates' courts.

Also, during 1968, four individuals were convicted for breaches of the regulation respecting water wells and a corporation was convicted for failure to obtain the approval of the Commission for the establishment of a sewage disposal system.

**SAGA**  
**SEPARATES**



THE COMMISSIONERS -- 1956 - 1968

Initial Commission personnel included three Ontario Water Resources and Supply Committee stalwarts -- A.M. Snider of Waterloo, J.A. Vance of Woodstock, and W.D. Conklin of Kingsville, with Mr. Snider taking over the chairmanship, the same position he held with the Committee. Two newcomers rounded out the first Commission -- Mayor Robert Simpson of Arnprior and W.H. Brien, Q.C. of Sault Ste. Marie, a former mayor of that city.

Of these originals, Mr. Brien died October 28, 1957, Chairman Snider died June 7, 1964, to be succeeded as Commission leader by Dr. Vance, who had received an honourary degree, LL.D., Doctor of Laws, from the University of Western Ontario in 1959. Mr. Simpson resigned December 20, 1962, with Mr. Conklin retiring October 1, 1968, leaving Dr. Vance the only original member remaining in office 12½ years after the Commission's formation.

Appointments to fill the vacancies over the years included three members of the Ontario Legislature who later gained cabinet rank in the government--one of them--John P. Robarts, Q.C. -- eventually becoming Prime Minister in succession to the Hon. Leslie M. Frost who rightly could be termed the "Father of the Ontario Water Resources Commission". The others were Charles S. MacNaughton of Exeter who became Minister of Highways and subsequently Provincial Treasurer, and A.A. Wishart, Q.C., of Sault Ste. Marie, who became Provincial Attorney-General and Minister of Justice.

The fourth M.P.P. to be appointed to the Commission was John H.H. Root of Orton -- November 9, 1961. He was a Minister of Portfolio until he replaced Mr. MacNaughton as an OWRC commissioner. He became Commission Vice-Chairman September 10, 1964.

Other commissioners and their service dates --

Hugh E. Brown, Toronto, Deputy Provincial Treasurer -- appointed June 18, 1964.

L.R. Desmarais, Sudbury businessman -- appointed September 10, 1964, resigned March 18, 1965.

D.A. Moodie, Reeve of the Township of Nepean -- appointed September 10, 1964.

Leo E. Venchiarutti, Toronto architect -- appointed February 25, 1965.

During this time, ministers of three departments reported to the Ontario Government on behalf of the Commission.

From the start to March 31, 1960, it was the Department of Public Works, at which time the responsibility was transferred to the Department of Municipal Affairs. This alignment continued until May 1, 1964, when cabinet responsibility for the Commission was transferred to the Department of Energy and Resources Management.

Service dates of the three Commission members who ultimately became cabinet ministers were --

Mr. Robarts -- appointed December 22, 1958, at which time he also entered the cabinet as a Minister Without Portfolio. He resigned as a commissioner December 22, 1959, when he was appointed Minister of Education. He became Prime Minister November 8, 1961.

Mr. Wishart -- appointed April 23, 1959; resigned April 29, 1964, when he was named Attorney General of Ontario. In May 1966, an adjustment was made in Mr. Wishart's ministerial designation and he became Minister of Justice and Attorney General.

Mr. MacNaughton -- appointed January 21, 1960; resigned November 8, 1961, at which time he entered the cabinet as a Minister Without Portfolio. On October 25, 1962, he was appointed Minister of Highways, a cabinet position he held until November 24, 1966, when he became Provincial Treasurer.

WATER SAGA SEPARATE

No. 2

MANAGEMENT STAFF SET-UP -- 1957 - 1969

NOTE: Actual official appointment dates for those succeeding to vacant positions are not indicated in all cases below. However, they are a true reflection of the times when position responsibilities were assumed.

-----

General Manager and Chief Engineer ---

Dr. A.E. Berry, 1956-1963 (retired)

General Manager ---

D.S. Caverly, 1963 --

Commission Secretary ---

Brian Larmour, 1956 - 1960 (resigned)

W.S. MacDonnell, 1960 --

Executive Officer ---

W.S. MacDonnell, 1957 - 1960 (to new assignment)

Executive Engineer ---

L.E. Owers, 1961 - 1963 (to new assignment)

Assistant General Managers ---

G.M. Galimbert, 1961-1965 (retired)

D.S. Caverly, 1961-1963 (to new assignment)

L.E. Owers, 1963 --

K.H. Sharpe, 1965 --

F.A. Voegel, 1965 --

A.K. Watt, 1965 --

Assistant to the General Manager ---

L.M. Tobias, 1963-1967 (to new assignment)

M.J. Cathcart, 1967 --

In regard to the Assistant General Managers appointed in 1963 and 1965, each was responsible to the General Manager for the activities of certain divisions -- for instance, Mr. Owers was responsible for the divisions of Project Development, Construction and Plant Operations; Mr. Sharpe, Sanitary Engineering and Industrial Wastes; Mr. Voegel, Laboratories and Research; Mr. Watt, Water Resources.

The first two AGMs appointed in 1961, Mr. Caverly and Mr. Galimbert, also continued as directors of the divisions of Plant Operations and Sanitary Engineering, respectively, until 1963 at which time Mr. Caverly became General Manager. Mr. Galimbert was succeeded at that time in the Sanitary Engineering post by K.H. Sharpe, but continued as an Assistant General Manager until his retirement in 1965.

DIRECTORS -- ADMINISTRATIVE DIVISIONS OR SECTIONS  
(Directly Responsible to General Manager)

Administrative Services ---

L.M. Tobias, 1967 --

Finance ---

W.M. Ross, 1958-1960 (resigned)

D.A. Joynt, 1960-1967 (resigned)

E.F. Heath, 1967 --

Legal ---

N.A. Shepherd, 1957-1960 (resigned)

Henry Landis, 1960--

Personnel ---

A.R.W. Uren, 1959 ---

Public Relations and Information ---

John C. Scott, 1957-1968 (to new assignment)

M.F. Cheetham, 1968 --

It should be noted that until 1963, the title of the head of the financial section, or Accounts Branch, was Chief Accountant. In that year it was changed to Comptroller and a year later the branch was given divisional status -- Division of Finance. Then, in 1965, the Comptroller also assumed the title of Director, Division of Finance.

The Public Relations and Information section from 1957 to 1968 was known as the Information Branch and its head was the Information Officer. In 1968, with a change in set-up, direction of the section was given to a new Director of Public Relations and Information.

DIRECTORS -- TECHNICAL DIVISIONS

Construction ---

A. W. Shattuck, 1957 --

Industrial Wastes ---

R.H. Millett, 1965-1967 (resigned)

D.P. Caplice, 1967 --

Laboratories and Research ---

A.V. Delaporte, 1957-1959 (retired)

F.A. Voegelé, 1959-1963

Laboratories ---

F.A. Voegelé, 1963-1965 (to new assignment)

J.H. Neil, 1965 --

Research ---

A.J. Harris, 1963 --

Plant Operations ---

D. S. Caverly, 1958-1963 (to new assignment)

B.C. Palmer, 1963-1967 (resigned)

D.A. McTavish, 1967 --

Project Development ---

P.G. Cockburn, 1965 --



Sanitary Engineering ---

Dr. A.E. Berry, 1957-1958  
(relinquished post but continued as  
General Manager and Chief Eng.)

G.M. Galimbert, 1958-1963 (new assignment)

K.H. Sharpe, 1963-1965 (new assignment)

J.H. Barr, 1965 --

Water Resources ---

A.K. Watt, 1961-1965 (to new assignment)

K.E. Symons, 1965 --

Dr. A.E. Berry continued as director of the Division of Sanitary Engineering for a year following its transfer from the Department of Health, combining that duty with his position as General Manager and Chief Engineer of the Commission.

Official sanction for a two-branch Division of Water Resources was given in 1958, but no director was appointed until 1961 at which time the Surface Water Branch began to function actively. The Ground Water Branch had been busily engaged since the Commission's active start in 1957.

OWRC GROWTH REFLECTIONS

Growth of the Ontario Water Resources Commission over the years is well reflected in its annual expenditures on ordinary account -- that is, on all programs including administrative, but excepting the one concerned with direct financing of water and sewerage projects in which the Commission was involved with municipalities.

Other indications of expansion of the Commission and its programs could be found in the issuance of Certificates of Approval for various water and sewerage works throughout the Province, staff expansion throughout the various divisions and in the operation of water and sewage plants.

In regard to the ordinary expenditures, these totalled \$60,352 in 1956-57, the Commission's first fiscal year. However, that was before the advent of the revised Ontario Water Resources Commission Act, 1957, which really set the OWRC in motion with realistic programs.

The 1957-58 expenditures on the same account totalled \$518,063. By 1961-62 this had reached to more than \$2 million. In 1964-65 it went over \$3,114,742, topped \$4 million the next fiscal year, and reached more than \$9.5 million in the 1968-69 year.

Capital expenditures -- those concerned with the financing of projects -- started at a modest \$1.7 million in 1957-58, touched more than \$9 million the next year and hit a peak of \$24.7 million in 1962-63, held at \$21 million in 1964-65, slumped to the \$15-million mark in both the next two fiscal years, rebounded to an all-time high in 1966-67 at \$25 million, touched a healthy \$19 million the next year, and then eased again to \$15 million in 1968-69.

Roller-coaster tendencies in the totals of these expenditures since the 1961-62 fiscal period could be attributed to various factors, some continuing in nature and other more temporary. Included in causes for upward trends could be construction of such a major project as the Lake Huron Water Supply System followed by the Lake Erie Water Supply System. Then there was the advent in late 1960 of Federal Government loan assistance to municipalities interested in water pollution control projects. This legislation, which caused OWRC procedures in regard to OWRC-Municipal projects at that time to be somewhat altered, authorized Central Mortgage and Housing Corporation to lend two-thirds of the money required for certain parts of sewage works which involved the collection systems and treatment facilities. Twenty-five per cent of such loans would be forgiven if the works involved were completed before a certain date. Duration of the scheme itself was extended from time to time, however, and the intent of the original authorization was not allowed to die when the first deadline date was reached.

Thus, most money being loaned to municipalities for such sewage projects began coming from CMHC. However, in Ontario and in regard to OWRC-Municipal agreements for sewage projects of this nature, the Commission continued its active role and became agent for the municipalities in any such dealings with CMHC as well as providing the money to finance the remaining one-third of the cost of the works involved.

Another factor in pattern changes in annual capital expenditures could have been that in the years under review many major municipal projects proposed by the Commission gradually had been completed and put into operation, leaving, chiefly, only those with real financing problems.

An additional distinct reflection of the Commission's activities, particularly in the construction of water and sewerage works, could be seen in the annual statistics provided by the Design Approval Branch of its Division of Sanitary Engineering which was responsible for checking and passing on plans for such works throughout the Province whether the OWRC was directly involved or not.

These statistics, concerned with the issuance of Certificates of Approval, while not based alone on OWRC operations which, in fact, made up only about 10 per cent of the total, did provide an excellent reflection of the growth of interest and the increased action in the matter of provision of municipal water and sewerage works. In fact, much of the increased interest and action generated in this field could be attributed to Commission activities -- through its example and powers of persuasion.

Certificates of Approval indicated only that certain plans and specifications for proposed works had passed OWRC inspection, not that such works were under construction or completed.

In the matter of issuance of these certificates, the first full year of OWRC participation was 1958. Prior to 1957 and up to April 1st of that year, this had been a Department of Health assignment, but it was transferred along with certain Sanitary Engineering personnel to the Commission at that time.

For 1958 the Commission reported issuance of certificates for water works valued at an estimated \$39,224,132 and for sewage works \$70,296,000 -- a total of \$109,520,133. By 1962, comparative figures were for water works a record \$51,643,155, for sewage works a record \$96,111,121, a total of \$147,754 -- an all-time high which held until 1966 when the total, helped by a record \$106,675,089 for sewage works, reached \$152,996,318. By the end of 1968 this had reached \$202,661,960, including a record \$150,173,936 for sewage works applications, and \$52,488,024 for water works, the latter amount second only to the all-time high of \$54,961,748 reported in 1964.

It is interesting to note that the figure of \$1.4 billion, projected as the amount which would be required between 1955 and 1975 for water and sewerage needs in Ontario, works out to an average of \$120 million per year. The approvals figures by the end of 1968 -- based on a total approvals value of more than \$1.6 billion accumulated since OWRC took over issuance procedures -- worked out to an average of more than \$130 million per year -- fairly well ahead, by the end of 1968, of the average pace projected in 1955 for requirements for the future.

The projected figure for the 1955-75 period was included in the report of the Ontario Water Resources and Supply Committee which was prepared late in 1955 and printed as an appendix to Ontario's submission to the Royal Commission on Canada's Economic Prospects around that time. The Committee was the forerunner to the Commission.

Value of certificates issued for OWRC-financed municipal projects during the 1957-68 period totalled an estimated \$171.3 million, and it was this work which helped provide much of the impetus to the entire program throughout the Province. As well, many smaller municipalities which otherwise would not have been able to participate on their own because of financial reasons were enabled to go ahead with needed works because of Commission guidance and assistance.



Another factor which well indicated OWRC expansion was its staff which gradually increased as the Commission became more active, as it took on the planning for and the operation of more and more water and sewage works, as it became more and more involved in the field of industrial waste control and water pollution investigations and control generally. Then there was the Commission's Division of Water Resources which started with a two-branch system -- Ground Water and Surface Water -- but which expanded into four branches, Surveys and Projects, Hydrologic Data, River Basin Research and Water and Well Management, all concerned with important aspects of Ontario water management program.

The Commission's involvement with International Joint Commission investigations in regard to conditions in the Great Lakes and their tributaries as well as other waterways common to the United States and Canada made additional staff necessary for the Division of Sanitary Engineering, while the total sum of all the water and pollution investigations also greatly increased the work load of the Commission's laboratories as well as its Division of Research.

The increased activities could be truly reflected in staff growth from 1957, the Commission's first full year of active involvement in programs, to the end of 1968. At the end of 1957, head office and laboratories had 82 employees. By the end of 1962 this had reached 300, with 723 listed at the end of 1968.

Because of the technical nature of much of its work, the Commission required the services of many scientific and professional persons. These covered a wide range and included such categories as civil, chemical, mechanical, electrical and geological engineers, chemists, bacteriologists, biologists and geologists. On the administrative side there were staff members in the fields of law accountancy, office management, public relations and personnel work.

Also, there were technologists, technicians, clerks, secretaries and typists.

In the late sixties, the Commission established a system and data processing section staffed as it expanded with professional engineers, mathematicians, statisticians, and graduates in commerce and finance and business administration.

The Division of Plant Operations also was in a position to reflect the Commission's growth as year after year it took on responsibility for the operation of more and more water and sewerage works OWRC had planned, financed and built for municipalities.

The year 1958 saw this division take over 15 such projects, nine water and six sewage. Five years later such plants totalled 191--85 water and 106 sewage.

By the end of 1968, OWRC's Division of Plant Operations was in charge of the operation of 313 -- 131 water and 182 sewage projects. Plant staffs, on the Commission's payroll, started at 15 in 1958 and had climbed to 285 by the end of 1968.

WATER SAGA SEPARATE

To. 4

OWRC-MUNICIPAL PROJECT RELATIONSHIPS

AND THE MUNICIPAL BOARD

From the beginning, the Commission was in a position to advise and aid municipalities in respect to all aspects of water supply and sewage disposal. In fact, no municipal works of this nature, or extensions or alterations to existing works could be undertaken without OWRC approval.

Municipalities requiring water and/or sewage works could arrange for construction of such works themselves or they could ask the Commission to handle these projects, with OWRC arranging planning, construction, financing and operation and maintenance.

OWRC staff, however, also was available in an advisory capacity to municipalities which decided to provide their own works.

Municipalities which did decide to undertake an agreement with the Commission did not have to raise any money through issuance of debentures. The Commission arranged to finance the work through construction with funds from the Ontario Treasury. When the works were ready for operation the value of the asset was recorded and charged back to the municipality over an extended period of years by means of a sinking fund. The life of such an agreement generally was arranged for 30 years. Each annual payment by a municipality to the Commission was invested and the interest accumulating on this investment was credited to a debt-retirement account.

The actual rate of interest paid by the Commission on its total borrowings each year was charged to the municipalities associated with OWRC projects. By this arrangement, the rate of interest charged a municipality was not fixed, but varied each year in accordance with the average rate of interest based on the Commission's total annual borrowings from Treasury.

This mass borrowing by Treasury on behalf of the Commission tended to obtain lower interest rates for the benefit of municipalities involved in OWRC projects. This was true particularly where smaller communities were concerned. These municipalities just could not compete with larger borrowers when it came to obtaining advantageous interest rates.

It was arranged that at the end of the period of an agreement between the Commission and a municipality, when the sinking fund with its accumulated interest had amounted to the debt outstanding, the works could be turned over to the municipality. A reserve account to provide for special contingencies was to be maintained for each project, and any sum outstanding in this fund at the end of the period of agreement was to be returned to the municipality if the works were to be taken over by it.

Commission bonus items which could be of particular assistance to municipalities proceeding under this system included deferment of capital payments through the first few years on a basis of advantage to the municipality. This was planned as an aid to municipalities which found that users came into the system gradually rather than all at once at the outset. It reduced the financial load on a system just getting underway.

Another Commission service was the introduction, on request, for municipalities of complete billing and control procedures. Commission staff, without charge to the municipality, would make recommendations providing for a comprehensive and efficient accounting system for water works and sewage works operation. Technical advice was similarly provided.

Actual operation of the works constructed by the Commission was under a staff of engineering specialists. A key feature from the start, however, was the active participation of a local advisory committee appointed by the municipality itself to work with Commission personnel in the administration and operation of a project. This close co-operation was found to be an effective and satisfactory arrangement. All matters related to the undertaking were discussed with the advisory committee at regular meetings.

Actual operating staffs of OWRC-municipal projects were screened and hired by the Commission's Personnel Branch.

First change in this initial *modus operandi* came on May 21, 1964, when Prime Minister John P. Robarts announced the Ontario Government had requested the Commission to offer to construct a water pipeline between Lake Huron and the outskirts of the City of London. The pipeline would be designed to provide an assured source of water not only to London but to any municipalities in the vicinity of the line that required water.

Financing would be borne by the Provincial Government with the OWRC acting as its agent.

The capital cost of the pipeline, its required pumping stations and filtration facilities was to be financed entirely through provincial auspices, with the municipalities being supplied water at a price sufficient to meet construction and operating costs and amortization. The pipeline as such, incidentally, would carry water to municipal boundaries only, with the municipalities responsible for distribution from there to the ultimate consumers.

This new-type financing at first applied to this particular pipeline only. However, it did leave the way open for Commission investigation into the possibility of other pipelines, built under the same conditions, to supply other water-short areas.

It should be noted that the Commission and the City of London had been negotiating for many years in regard to a possible pipeline, with the city finally deciding to attempt to build it without Commission assistance. The Ontario Government decision, however, changed the whole situation and it did not take the Commission and the city long to reach an agreement and the Lake Huron Water Supply System began to take shape.

Incidentally, the London plans had not included the type of facilities which would have provided enough water for other municipalities on the pipeline route. Commission thinking had been that any such project should be able, when completed, to serve all municipalities within a reasonable distance from that pipeline.



Then, on August 6, 1965, Mr. Robarts announced extension of the policy established in regard to the London pipeline to involve financing, construction and operation of other water works and sewage works also.

Mr. Robarts' statement at that time said:

"It is now proposed that the Ontario Water Resources Commission may finance, construct and operate both sewage and water works throughout the Province. The capital and operating costs of these services will be paid by the Province through the Ontario Water Resources Commission and will be recovered by a service charge to users, whether domestic, commercial or industrial, together with amortization costs over the life of the project. At the completion of the amortization period the facilities will continue to be the property of the Province and, if still serviceable, can continue to provide the services at cost.

"This present policy will permit the Province to assist, through the Ontario Water Resources Commission, in construction, operation and financing in the cases of those municipalities which are unable to finance due to restrictions imposed by the Municipal Board or due to the necessity of the use of their credit for other facilities such as schools."

The statement noted it would be feasible for the OWRC to construct either water or sewage projects to serve large areas of the Province and yet to charge to any particular municipality in the area only that portion of the cost relating to its use of the facilities.

Thus the Commission was obtaining more and more governmental support for a policy concerned with integrated projects -- a policy it had been interested in since its beginning.

The next move in this direction came June 6, 1967, when Hon. John R. Simonett, Minister of Energy and Resources Management, through whom the Commission reported to the Government, announced that the policy announced by Mr. Robarts in 1965 was being given even more width.

"Up to the present," he said, "our policy has provided for the construction and operation of water treatment plants and sewage disposal plants for municipalities with the cost being recovered on a usage basis. These plants are operated entirely at cost and are the property of the Province. Municipalities have been required to provide the trunk sewers and water mains necessary to connect with the homes using the services.

"The cost of providing the sewer trunks and water mains has proven to be a heavy burden in some of the smaller municipalities and it has been decided that in future, these services will be included with the treatment plants in the provincially financed program. In these cases the entire installation of water and sewage treatment facilities up to the house connections will be part of a provincially financed construction program to be operated at cost by the Ontario Water Resources Commission on behalf of the municipality."

It was again emphasized that the provision of these facilities would not involve increasing the "present" level of municipal debenture debt.

As a result of this statement the Commission was authorized to develop complete projects, including treatment facilities and local collection sewers or watermains, for smaller municipalities.

The policy departures from the original conception in 1957 marked a distinct change in OWRC procedures and put the Commission on a basis somewhat similar to that of the Hydro Electric Power Commission of Ontario which was selling electricity at cost to the consumer municipalities.

These various methods of financing were unique in both their conception and their operation -- probably unequalled in exact detail anywhere else in the world where public water and sewage works were concerned.

The Provincial Projects plan which basically had its start with the policy adopted in connection with the Lake Huron Water Supply System (the Lake Huron-to-London pipeline) could be termed to be nothing, more or less, than a matter of necessary evolution from the original concept of financing OWRC-municipal projects. The initial plan was chosen over other alternatives, including one similar to the eventually adopted Provincial Projects plan, because it appeared to the Government, at the time, to be the most feasible since it was one which appeared most unlikely to prove detrimental at that time to the credit of the Province.

The Ontario Government had to guard against spreading that credit too thin -- since it had other major considerations and obligations such as education, highways, public health, hospitals, to name a few rapidly expanding public services in great demand.

In all its dealings with municipalities the Commission was in close touch with the Ontario Municipal Board -- created by the Ontario Government to protect and assure the financial stability of municipalities. It placed debt limits on municipalities which were related to population, assessment and the tax rate.

Early in its life, the Commission found many projects it prescribed for municipalities were not approved by the OMB because of costs the Board felt the particular municipality could not finance without exceeding a safe debt limit. This balked the OWRC in its desire to assist municipalities install works considered by the technical people concerned to be a necessity. Projects were held up indefinitely while OMB-OWRC discussions were held and while project engineering was tailored down to the municipality's ability to pay as rated by the Board.

Gradually, however, any misunderstandings which existed between OWRC and OMB began to disappear as the OWRC program forged ahead on a realistic basis. The Commission made a general appraisal of the financial status of the municipalities before proceeding too far with projects, thus allowing preliminary stages to proceed at a faster pace. Another result, however, was that in many cases plans calling for secondary treatment facilities for sewage plants had to be cut down so that primary treatment only would be provided. Nevertheless, there was always the provision that a secondary stage would be added when the finances of the municipality concerned would allow the additional cost.

With the advent of the OWRC Provincially Owned Programs, where the OWRC recovered capital costs through a service charge based on usage, earlier financing complications were further reduced.

WATER SAGA - SEPARATE

No. 5

AMENDMENTS TO THE ACT -- SOME CONTROL HIGHLIGHTS

(Water-taking, Aquatic Nuisances and the Boating Regulation)

Much important and interesting legislation amended the Ontario Water Resources Commission Act from time to time in the years following the 1956-1960 formative period. Here are those involved with introduction of a permit system for water taking, provision of a similar system in regard to addition of chemicals to water to control aquatic nuisances, and the power of the Commission to make regulations prohibiting the discharge of sewage from pleasure boats.

In 1961, the taking of more than 10,000 gallons of water in a day from any source of supply without a permit issued by the Commission was prohibited unless the taking was for domestic or farm purposes, not including irrigation or for fire fighting, or unless the means of taking, namely the well, inlet or other works, were constructed or installed before the amendment came into force on March 29, 1961. The Commission was authorized, in its discretion, to issue, refuse to issue or cancel a permit or to impose such terms and conditions in a permit as it deemed proper, or to alter the terms of a permit after it was issued.

The amendment permitted comprehensive and flexible control over available sources of surface and ground water supplies. It was intended to assure equal distribution of available water to the users.

In 1962 contravention of this requirement of a permit or the contravention of any of the terms and conditions of such a permit was made an offence for which a daily fine could be imposed. The penalty involved was increased the next year by a further amendment.

The program did not become a major operation, however, until 1963, because since the original legislation came into effect much time had been spent in educating water takers and potential water takers concerning all aspects of the legislation and its purpose.

Further legislation in this direction was passed in 1964, when, with certain exceptions, the Commission was empowered to prohibit the taking of water without a permit from the Commission when the taking interfered, in the opinion of the Commission, with any public or private interest in water.



In 1962 an amendment prohibited the addition of any substance to the water of any well, lake, river, pond, spring, stream, reservoir or other watercourse or water for the purpose of killing or affecting plants, fish or other living matter without a permit from the Commission. In its discretion the Commission was authorized to issue, refuse to issue, or to cancel a permit or to impose such terms and conditions in issuing the permit as it deemed proper or to alter the terms and conditions of a permit after it was issued. The contravention of this requirement or of any of the terms and conditions of a permit was made an offence for which a fine was imposed.

The addition of chemicals to water to control aquatic nuisances presented a potential hazard to health and wildlife and the amendment furnished a flexible means of control to reduce this hazard to a minimum.

Two years later, in 1964, the power of the Commission to make regulations was extended, by amendment to the Act, to cover for the purpose of preventing or reducing the pollution of water, the regulation of the storage and treatment of sewage in boats, the prohibition and regulation of the discharge of sewage from boats, the regulation and control of places where moorings or services were provided for boats and of persons providing such moorings and services.

Early in 1965, a technical report on "Marine Toilet Disposal Facilities" was prepared by an OWRC committee appointed to look into boat and marina sanitation. On the basis of this report, and other information received on the subject of boat sanitation, a regulation providing for the prevention of pollution from pleasure boats into any water in Ontario was approved in August, 1966, and was slated to become effective July 1, 1967.

This regulation provided that pleasure boats with sleeping accommodation must be equipped with a marine toilet and an approved device which would store or dispose of human sewage. Holding tanks, with and without recirculation, which stored the wastes from marine toilets for subsequent shore disposal and incinerators were the only types of devices which met with OWRC approval. Macerator chlorinators which chewed and chlorinated the sewage before it was dumped into the receiving water were not acceptable with the exception that if the owner or operator of a boat had a chlorinator installed before August 13, 1966, he would have until July 1, 1968, to comply with the relevant sections of the regulation which, incidentally, applied to any boat in Ontario waters including those from other parts of Canada or the United States.

The regulation also required all pleasure boats, with or without sleeping accommodation, to have a litter container which could be emptied only on shore and in a lawful manner.

When the provision of this regulation were published in 1966, it was proposed by boating interests that additional time was required to enable compliance, and that the period of grace for the chlorinators should be extended. Following discussions with boating organizations, the regulation was revoked and a new one made in November, 1966. This was scheduled to go into effect June 1, 1968, and contained practically the same provisions as the first except chlorinators were to be allowed until January 1, 1971, providing the boat owner obtained a temporary permit from the OWRC. For boatmen from other jurisdictions, where requirements differed from those of Ontario, provision was made for discretionary approval to be given providing the boat was equipped in accordance with the requirements of its home jurisdiction.

The boating fraternity still was not satisfied, however, and further protests ranged from requests for repealing the regulation altogether to postponing it until sufficient shore-based sewage pump-out stations had been provided to service the boats. Finally, on April 4, 1968, Hon. John R. Simonett, Minister of Energy and Resources Management, announced that the date of implementation of the regulation was being postponed until January 1, 1969. A reason for this postponement was given as additional time was required for the provision of shore-based holding tank pump-out facilities. Provision of such facilities was not covered by regulation but it was expected that marina operators would start offering such a type of service to meet the expected demand.

Mr. Simonett at the time was the Minister through whom the OWRC reported to the Government -- the member of the cabinet responsible for the Commission's operations.

SPECIAL INVESTIGATIONS

--Great Lakes and Northern Ontario--

Of the many special assignments undertaken by the Commission from its start to 1969, the most glamorous, perhaps, and the ones which probably attracted the most concentrated public attention were the work on the Great Lakes, which chiefly involved personnel from the divisions of Sanitary Engineering and Laboratories, and the inventory of Ontario's northern water resources involving the Division of Water Resources.

The Commission began working on the special co-ordinated Great Lakes pollution project in 1965 as a result of a reference from the governments of Canada and the United States to the International Joint Commission. The inventory of the northern resources was undertaken jointly also in 1965, by the Ontario and Federal governments.

These latter studies were announced as part of long-term programs of both governments to increase the knowledge of the water resources of the Province of Ontario and of Canada as a whole. They included a study of the feasibility of making better use of northern Ontario's water by diverting it from one water basin to another. The five main river basins were included in the study-- Severn, Winisk, Attawapiskat, Albany and Moose, an overall area of approximately 173,000 miles.

In addition to the OWRC role, which included the undertaking of a widespread hydrologic study in the area, the Ontario Government was to make a study of the potential economic development of northern Ontario and the role water resources would play in such development. The federal investigators were assigned to study various social and economic aspects involved in water diversion possibilities.

Prime Minister John P. Robarts of Ontario commented at the time of the joint federal-provincial announcement that "no one knows how much water we have in northern Ontario or how much we need to develop that part of our Province."

Assistant General Manager A.K. Watt of the OWRC was named chairman of the Ontario group involved in a federal-provincial committee organized to co-ordinate these studies.

Ontario, through the Department of Health, had been involved in International Joint Commission work on various Great Lakes and in some of their connecting waters before the Commission was set up. And, the problems surrounding pollution in these waters as reported from time to time by the IJC had resulted, in 1954 and 1955, in an exchange of correspondence between the prime ministers of Canada and Ontario-- Hon. Louis St. Laurent and Leslie Frost.

Investigational work on the lakes had been going on for a number of years prior to Commission days and continued following the activating of the OWRC in 1957. It was not until 1965, however, that a major co-ordinated effort began under IJC auspices, with Commission personnel undertaking Ontario's responsibility in this particular program of pollution investigation. In some respects, the OWRC's role here was similar in essence to its regular stream monitoring program.

Purpose of this work was to delineate conditions in the Great Lakes which border Ontario to set forth known and possible causes of these conditions and to suggest remedial measures. Special staff and facilities, such as area laboratories, aircraft and charter vessels, were provided to further this effort, but until the end of 1967 the OWRC work was devoted almost entirely to supplying inventory information to the IJC. However, studies were started in 1968 of lake water quality under winter conditions. Also, during this year, the surveys were modified further to give more emphasis to the information needs of the Commission's own water management programs. This included studies during the spring and fall and coverage of local pollution problems in the upper lakes.

These adjustments in the scope of the program were mainly influenced by the development and publication in 1967 of a new OWRC water use and pollution control policy. The policy recognized the natural capability of a body of water to accept treated wastewater, and the problems of water pollution and interference with water uses when this capability was overtaxed by uncontrolled waste discharges. The task then became one of defining this natural capacity and use level beyond which further additions of wastewater and waste heat would be unacceptable.

These adjustments in no way interfered with the objectives of the project and work being carried on as a result of the reference of the International Joint Commission. A similar program had been developed also on the international section of the St. Lawrence River.

Both the Great Lakes and the northern Ontario assignments were year-round projects scheduled to last for some time.

Aircraft and various size lake vessels involved in the IJC project were equalled on the northern project by winter and summer-equipped aircraft, suitable watercraft and snowmobiles.

Also, the Commission's systems and data processing section was involved in the Great Lakes investigations through computer programming and output of water quality data required for evaluation and final analysis of the problem.



INDUSTRIAL WASTES

Industrial wastes, before the Commission came into being in 1956, were just another item in the overall water pollution picture. However, Ontario's great industrial expansion in the decade following the Second World War brought the industrial pollution problem more and more into focus as something requiring special consideration.

When the Commission was first organized into various divisions in 1957 the job of studying, investigating and evaluating the fast-growing problem was assigned to an Industrial Wastes Branch of the Division of Laboratories and Research, with the Purification Processes Branch of the same division assigned to assist in a research role. The early years were confined chiefly to the conducting of surveys and carrying out of investigations of unknown types of wastes being produced by an expanding volume of new industrial processes.

Further, industry itself was being familiarized with problems created by uncontrolled discharge of their wastes to municipal sewers and to watercourses, as well as their responsibilities in this regard. Policing of industry was undertaken and, where feasible, offenders who failed to heed OWRC warnings and advice in the matter of doing something about cleaning up and making their wastes fit for discharge to waterways were threatened with court action, for which provision had been made in the Act.

Taking an offender to court was a last resort, however, the Commission preferring to obtain, by persuasion and understanding, co-operation from the industries concerned. Commission technical assistance was available to any firm with a problem.

The handling of this problem had become of such magnitude by 1965 that a separate Division of Industrial Wastes was set up at which time, with the addition of new staff, all programs were intensified and new ones planned.

Just prior to the organization of the new division, the Commission set out objectives of a program of pollution control for the pulp and paper industry. In a letter to senior executives and mill managers of all companies in the Province, Dr. James A. Vance, Chairman of the Commission, set out objectives for a staged or extended effluent improvement program. Deadlines were set for the submission of both primary and secondary treatment plans to the Commission, with a five-year deadline placed on eventual conclusion of installation of required works. All companies were required to submit annual progress reports to the Commission.

The issuance of the directive to the pulp and paper industry followed Commission activity the previous year when it took a more intensive look at problems created by industrial wastes. First concentration was on the pulp and paper people. Through fact-finding tours, by the Commissioners themselves, of a cross-section of the pulp and paper mill districts in all parts of the Province, and reports compiled by OWRC staff, a much clearer picture of these problems was obtained.

A short time after the new division got started, a Commission communication was dispatched to 400 other industries throughout Ontario setting out the OWRC's objectives for control of their wastes, and requesting each to undertake a program of effluent improvement promptly. It was pointed out that the Commission recognized the magnitude of the pollution control programs involved and was prepared to discuss scheduling of treatment undertakings. Wherever practical solutions were available, however, it was stressed that the Commission expected that treatment would be provided without delay.

To effect greater control over new industries and installation of new waste treatment facilities in established plants, the division set up a Design Approvals Branch to review all applications from industry for the approval of plans for the collection, transmission, treatment and disposal of industrial wastes where the effluent from such facilities were to be discharged to a natural watercourse or storm sewer. In short, all new industries had to obtain OWRC approval for plans for installation of treatment works of any description.

This procedure was similar to that carried out on behalf of the Commission by the Design Approvals Branch of the Division of Sanitary Engineering which handled applications from municipalities seeking approval of plans for water and sewage works.

The emergence of the mining of uranium as an important industry in Ontario following discovery in 1953 and 1954 of large-scale deposits of economic-grade uranium-bearing ore in the Elliot Lake and Bancroft districts brought with it pollution hazards about which little had been known previously. At the outset of mining operations, the departments of Mines, and Lands and Forests applied the provisions of The Mining Act and The Ontario Public Lands Act to the establishment of suitable tailings (solid wastes) disposal areas. On the basis of knowledge available at the time, emphasis was placed on the control of tailings, employing practices which had been established and accepted as standard by the mining industry as a whole.

The Commission entered the picture soon after it became activated in 1957, and OWRC staff, on a routine basis, started chemical and physical examination of tailings impoundment discharges to the receiving waters.

In 1958 exploratory sampling of drinking water supplies was started but in relation to the then-existing recommended acceptable concentrations for exposure to radiation, the levels of radioactivity found were not considered to be excessive. However, lower maximum permissible concentrations applicable to resident populations subsequently were introduced internationally. This, together with the 1961 expansion of the radiological laboratory facilities of the Ontario Department of Health enabled more wide-spread sampling on a systematic basis. Extensive sampling of wastes discharges, receiving waters and drinking water supplies for radiological analyses was therefore taken in both the Elliot Lake and Bancroft areas.

In 1964, a Reconnaissance Survey Report was prepared by the OWRC evaluating the extent of radiological contamination in detail and measuring the effects of radiological and chemical pollution on the biota of the waters examined. These findings were supported by the chemical, physical and radiological data compiled from the monitoring program. A few months later, this report was brought to the attention of uranium mine officials in a joint meeting with staffs of the OWRC and the departments of Health, Lands and Forests and Mines. Proposals for correction were outlined and operating companies were requested to submit corrective measures, such as diversion of creeks, the improvement of tailings disposal areas, the reduction of water-use in the milling process, and the chemical precipitation of radium-226.

The companies co-operated, but in November, 1964, after expression of public concern for the radiological pollution which had been reported. Prime Minister John P. Robarts set up a committee of Ontario deputy ministers to investigate and report on the situation. The committee's responsibility was to co-ordinate the efforts of all agencies and departments concerned in seeking a full assessment of the problem of radiological pollution of water in the mining areas of Elliot Lake and Bancroft, determining the implications of the problem and a means of solution.

Chairman of the committee was T.R. Hilliard, Department of Energy and Resources Management, and the other members were Dr. W.G. Brown, Health; D.P. Douglass, Mines; F.A. MacDougall, Lands and Forests. The committee was assisted by George M. Galimbert, Assistant General Manager of the Ontario Water Resources Commission, and by other staff members of the OWRC and personnel from other departments represented on the committee.

On the same day the committee was announced, the OWRC and the Department of Health issued a joint public statement that they considered there was no immediate radioactive hazard to persons in the Elliot Lake area, but that they were more concerned with the possibilities of a long-term hazard which could develop "should the present situation not be brought under control at this time."

The danger of an increase in radioactive hazards in the waters of the Bancroft area disappeared from 1963 to 1965 as the mines in that area, unable to negotiate satisfactory new contracts gradually ceased mining operations. Of the three big operating mines, two were immediately dismantled and the third rendered completely inactive. A not-so-drastic but similar situation occurred in the Elliot Lake area.

The committee of deputy ministers completed its work during 1965 and on November 24th of that year issued its report which carried the following five major recommendations:



1. It is recommended that the Province approach the Government of Canada with a view to clarifying procedure under existing legislative authority so to assure the control of radioactive pollution of public waters resulting from the disposal of mining and milling wastes from operating and abandoned uranium mines, within limits acceptable to the Province.
2. In establishing regulations for the control of radioactivity in public waters arising from uranium mining and milling operations, the objectives of the Ontario Department of Health should initially be adopted by the Province. These objectives are as follows
  - (a) In accordance with modern scientific knowledge and opinion, any unnecessary exposure to radioactivity should be kept to a minimum.
  - (b) Concentrations of from 10 to 3 picocuries of radium-226 per litre of water should be adopted as the initial objectives to be attained in public drinking waters in the Elliot Lake and Bancroft areas.
  - (c) Concentrations of from 30 to 10 picocuries of radium-226 per litre of water should be adopted as the initial or first-level objectives to be attained in those lakes and streams where present levels are in excess of this range.

These objectives should be reviewed annually with a view to their eventual reduction in accordance with the policy that unnecessary exposure to radioactivity be kept to a minimum.

3. The Province should continue to work directly with the uranium mining industry to seek practical means for the control of radioactivity and to establish sound design criteria for treatment and disposal works.
4. A detailed investigation of watercourses and waste disposal in both the Elliot Lake and Bancroft areas should be undertaken by the Province, and the present program of monitoring and analysis of mine and mill wastes, surface waters, and drinking-water supplies be expanded and extended on a long-term, continuing basis.
5. As a number of departments and agencies of government have a direct interest in the possible effects of radioactive water pollution and in its control, an inter-departmental technical advisory committee, to include members from the Ontario Water Resources Commission, and the Departments of Health, Mines and Lands and Forests, should be established to co-ordinate the detailed investigation outlined in No. 4 above, and to maintain liaison in subsequent pollution control activities.

In a report on the status of industrial pollution control in Ontario in 1967, the Division of Industrial Wastes reported that of 1,817 industries in the Province under active OWRC surveillance, only 407 were listed as having control facilities which were not acceptable. This report provided an excellent picture of the work accomplished by the division and mirrored the problems encountered in the carrying out of its responsibilities.

Another feature of industrial waste control operations with which the division was connected but did not directly administer was the annual Ontario Industrial Waste Conference. This originally was sponsored in pre-OWRC days by the Pollution Control Board of Ontario, the membership of which consisted of representatives of Ontario Government departments interested in or having obligations in respect to pollution control.

The first such conference was held in 1954, with the Commission starting its active part in 1957 when the Pollution Control Board became the Water and Pollution Advisory Committee of the Ontario Water Resources Commission. The annual conferences have always attracted top technical experts as well as others interested in the field of industrial wastes in both Canada and the United States.

## LABORATORIES AND RESEARCH

The Commission's divisions of Laboratories and Research can trace their roots back to the Provincial Board of Health which was set up under the direction of the Department of the Provincial Secretary in 1881. At the time laboratory services were meagre, but through use of facilities at the University of Toronto and elsewhere gradually expanded until 1909 when a sanitary chemistry laboratory, involved in water and sewage, analysis and research, and called the Experimental Station, was opened on Toronto's Richmond street, West.

This building was built by the Provincial Board on property donated by the City of Toronto.

The first director of this Station was Fred Chestnut who in 1910 was succeeded by Fred A. Dallyn, followed by A.V. Delaporte in 1913. It was the latter who was still in charge when the Experimental Station became part of the OWRC as a Division of Laboratories and Research in 1957.

Earlier, by 1924, the Provincial Board of Health had evolved into a Department of Health with Hon. Forbes E. Godfrey, M.D., as Minister. Under this new set-up the Experimental Station became a section of the new department's Division of Sanitary Engineering which had Mr. Dallyn as its first director.

In 1926, the man who was to become the first General Manager and Chief Engineer of the Commission, Dr. A.E. Berry, was appointed director of the division, succeeding Mr. Dallyn.

It is interesting to note that such was the involvement of the Experimental Station with the work of the International Joint Commission at times that, for instance, in the summer of 1913 it had to be closed for a period. Its entire staff was engaged in work concerned with IJC investigations .

During the 1914-18 period of the First World War, the Station was operated on a restricted basis.

With the formation of the Commission in 1956 and the knowledge soon thereafter that the Experimental Station and its staff would be transferred along with most of the rest of the Health department's Sanitary Engineering division's personnel to the Commission, it was realized that larger and better equipped laboratories would be required. The volume of work expected once the proposed Commission programs got actively underway could not possibly be carried on with the available facilities. It was on December 19, 1956, that the Commission approved plans for a new building which was to be erected in northwest Metropolitan Toronto, in Etobicoke Township at the corner of Highway 401 and Islington Ave., N. Construction details were in the hands of the Ontario Department of Public Works.

The new laboratories building eventually was occupied and put into operation by OWRC staff in 1960, but not before that staff had been forced in 1958 to move from the Richmond street Experimental Station to an old school building at Wellesley and Bay streets following a fire at the former site. At the same time, several other Commission divisions also moved into the Bay-Wellesley building due to overcrowding in the original East Block quarters. In this regard it is interesting to note that the Commission began looking forward to a time when, possibly, all OWRC staff, except plant operators, would be located at the Highway 401 site. Eventually an additional 22 acres, adjacent to the new lab property, was obtained by the Department of Public Works on behalf of the Commission. It was to be held for future OWRC use.

Much improvisation had to be carried out in order to keep laboratory facilities in operation in the period between the Richmond building fire and the obtaining of the old school site and the obtaining of required equipment. Fortunately, the fire occurred in the month of May, just when preparations were being made for the opening of temporary laboratories at Point Edward, St. Catharines, Glenora and Sault Ste. Marie. These were staffed immediately and some extra facilities were obtained at the University of Toronto's School of Hygiene.

When the move was made into the Wellesley street location, a few months after the fire, the temporary laboratory at St. Catharines was closed and the university facilities were no longer required.

The move to the new Etobicoke quarters was accomplished in March 1960, with an official opening on November 7th. Hon. W.K. Warrender, Q.C., officiated. He was Minister of Municipal Affairs, the portfolio through which the Commission reported to the Government.

When it began operating as a Commission unit in 1957, the Division of Laboratories and Research consisted of five branches -- Purification Processes, Industrial Wastes, Biology, Bacteriology and Chemistry.

The original division was divided in 1961, into a Division of Laboratories and a Division of Research. However, the new research section was not separately staffed until 1963 when A.J. Harris, who had been assistant director of the laboratories division, was named director. Other personnel of the new division came chiefly by transfer from the lab's Purification Processes Branch which then ceased to function. During the 1961-1963 period research projects were carried on as previously, either by that lab branch or by personnel in the other technical OWRC divisions.

Fred A. Voegelé, who had succeeded the lab and research division's original director, A.V. Delaporte, who retired in 1959, continued as director of the Division of Laboratories when Mr. Harris took over the research directorship.

The Commission's laboratories set work-load records practically every year since their start in 1957. For instance, in that year 13,212 samples were received for examination. By 1961 this had increased to 40,126 with individual tests on these samples totalling 130,151. This was the first year an accurate record was kept of such individual tests and in ensuing years these, too, kept climbing.

In 1965, samples totalled 67,405 and tests 256,695. By 1968 the respective figures were 106,676 and 581,235.

Every effort was made to keep laboratory operations abreast of modern advances in the various techniques. One such step was the adoption of instrumental analysis and some automation. As a result, by the end of 1968, 25 per cent of all tests were being accomplished by these methods. Another result was an increase in the number of individual tests per sample.



Instigation of a new Great Lakes survey program in the mid-60s with a resultant study of nutrients involved with the growth of aquatic nuisances also contributed to the records being established. Also, biology branch activities in the field were greatly expanded through establishment of a program of biological assessment of water quality.

In brief, the chief function of the Division of Laboratories could be said to be the responsibility for providing technical information, using the skills of its various disciplines -- bacteriology, biology and chemistry -- in the day-to-day water quality management program of the Commission.

When the Division of Research was activated in 1963, it took over several projects already underway or planned. The first three of these involved research into the use of aerated lagoons for treatment of cannery wastes, tertiary treatment for sewage plant effluents directed to small streams, and control and disposal of algae by spraying and mechanical means. The Commission was provided with special funds by the Ontario Treasury for this initial program of the new division.

From the beginning this OWRC section was most active and pursued a diversified program of research into a variety of matters. Illustrative of the work carried out on 76 projects from 1965 to the end of 1968 were investigations under these titles:

Effluent Diffusion in Large Bodies of Fresh Water; Waste Stabilization Pond; Berm Erosion; Farm Animal Waste Disposal; Lake Eutrophication; and Gamma Irradiation of Sewage and Sewage Sludges. The last project involved an investigation of the use of atomic energy in the treatment of wastes.

## SURVEYS

To keep itself informed and as up to date as possible in regard to the condition of the water resources of Ontario, the Commission was continually engaged in survey work of some type -- on county, area, district, municipal, or individual waterway bases.

There were surveys of water resources, water pollution, industrial pollution, ground water potentialities, river basins and the larger drainage basins as well as feasibility studies for water and sewage works, and studies concerned with water use and wastewater assimilation.

Sections of the Commission most closely involved in such investigations were the divisions of Sanitary Engineering, Water Resources, Industrial Wastes and Laboratories.

Organized long-term investigation of pollution on the Great Lakes, partly as a result of an International Joint Commission reference late in 1964, was carried on by federal, state and provincial agencies on both sides of the border, with OWRC's Division of Sanitary Engineering carrying out Ontario's share of the overall co-ordinated program. This was the largest single project of its kind in Commission history and involved the setting up of a special laboratory in London, Ont., and the employment of aircraft and watercraft for surveillance and sampling work.

Another major project was the inventory of Ontario's northern water resources -- carried on by OWRC's Division of Water Resources together with representatives of other provincial agencies and federal authorities. OWRC's role involved a widespread hydrologic study in the area, carried on the year-round and employing aircraft, watercraft and snowmobiles. This got its start in 1965.

In drainage basin survey work, carried on by the Division of Water Resources, financial support was obtained for special studies through the federal Agricultural Rehabilitation Development Act. These particular efforts concerned the Big Creek and Big Otter Creek drainage basins and included an assessment of surface water and ground water resources in the area, water use and opportunities for water development and management. It was because of the intense use of water for irrigation of tobacco farms in these basins that such financial support was gained.

Another interesting survey was the joint project of the Commission and the Quebec Water Board, in the Ottawa River basin. Objective of this study, started in 1967, was the development of a detailed plan for the control of water quality in the basin.

Commission responsibility in this instance was assumed by the Division of Sanitary Engineering. The survey was scheduled to run to 1970 when a summary report was to be released. It was to include detailed information on the existing water quality in the basin and present recommendations for controlling pollution and co-ordinating water uses in order to minimize water use conflicts.

## WATER SAGA SEPARATE

No. 10

### WATER-WELL MANAGEMENT

In 1945, the Ontario Government, through the Geological Branch of the Department of Mines, initiated an appraisal of the Province's ground-water resources and made provision for the assembly of ground-water data. As a result of a preliminary ground-water survey, it was realized that the basis for future studies would require accurate drilling records. Few drillers had made a practice of keeping accurate well logs.

The Well Drillers' Act, 1937, which had come into existence as a result of oil and gas-well drilling practices, provided the framework for water-well legislation. On April 25, 1946, two regulations came into effect. These, administered by the Mines department, required persons boring wells to hold a licence and to furnish the department with a water-well record within one month of the completion of the well.

Amendments to the legislation in 1947 required drillers to fill out records for both bored and drilled wells and defined the penalty for those guilty of an offence under the Act. During that year, the department licensed 176 drillers who submitted 1,200 well records.

On March 6, 1950, new regulations under the Act came into effect. These detailed the expiration date of each licence, made provision for the cancellation of licences, and set out legal forms for the issuance and renewal of licences.

Further and more precise control of the industry was introduced in 1954 with the passing of The Water-well Drillers' Act which gave inspectors power to enter upon premises to undertake well inspections.

On April 1st, 1957, the ground water involvement of the Geological Branch was transferred from the Department of Mines to the Ontario Water Resources Commission, which set up a separate Ground Water Branch, and the authority of The Water-well Drillers' Act was incorporated in The Ontario Water Resources Commission Act, 1957. This Act was amended in 1958 in regards to the water-well provisions and revised regulations emphasized the sanitary construction of wells and the proper sealing of abandoned wells. A licence fee was initiated for licences issued in 1959.

Minor revisions to the regulations were approved in December, 1960, the most important being the introduction of licensing of boring contractors.

On July 3rd, 1961, another regulation required a licence applicant to produce proof of two years' drilling experience. Some control over flowing wells was instituted and the installation of used casing was prohibited. Control of pump installation in wells also was instituted.

In 1968, the OWRC licensed 453 contractors and received 9,500 water-well records. More than 140,000 water-well records had been submitted since 1947 and had been filed for reference. Information from the records was published periodically in Ground Water bulletins.



WATER SAGA SEPARATE

No. 11

LAKE HURON WATER SUPPLY SYSTEM

In the late 1940s, London, Ont., was the largest city in Canada still dependent upon ground water for its municipal supply. This had proven most satisfactory, but, caught up in the post-war expansion of industry and population, common to all major Ontario urban centres, London began to feel the need for more water.

Suggestions were made that the city should go to either Lake Erie or Lake Huron, via a pipeline, for the supplies it now required. The city, however, preferred to stick to ground water and began expanding these facilities.

This was the situation when the Ontario Water Resources Commission came into being in 1956. London's problem became the Commission's problem as well. As the city sought more sources of ground-water supply, the Commission began urging the city to go to either lake, preferably Lake Erie, because any Erie-to-London line could also serve the nearby City of St. Thomas.

London and its Public Utilities Commission preferred Lake Huron as a source, but continued seeking more ground water and also put forward a proposition that would allow the city to make use of the impounded waters in the Fanshawe Dam, above the city on the Thames River. This latter proposition could not be accepted by the OWRC because such an operation would severely interfere with the river's flow. Then London's program of drilling deep wells in the areas outside the city proper began causing interference with private wells.

Finally the Commission persuaded London to go to Lake Huron, but they could not agree on terms for an OWRC-municipal agreement whereby the Commission would build and operate such a pipeline project on behalf of the city. So, London, through its P.U.C., decided to go ahead with the project alone.

Finally, after eight years of London-OWRC-P.U.C. discussions and disagreements, and before the city could get started on the project, Prime Minister John P. Robarts announced the Ontario Government had requested the OWRC to offer to construct a water pipeline between Lake Huron and the outskirts of the City of London. This line would be approximately 30 miles long and would provide an assured source of water for London as well as any other municipalities in the vicinity which required water. If London had carried out the project on its own, there were no plans for supplying water to other municipalities.

Financing of the construction would be borne by the Provincial Government through the OWRC. Capital cost of the pipeline to municipal boundaries and of the pumping stations required to force the water to the end of the line would be financed entirely through provincial auspices, with the municipalities being supplied water at a price sufficient to meet construction and operating expenses and amortization.

London agreed to this proposition following three months of negotiation and representatives of the Commission, the city and London's P.U.C. met in London in August, 1964, and signed the agreement which made this pipeline proposition a reality at last.

No time was lost and on September 4th Prime Minister Robarts, together with Dr. J.A. Vance, Commission Chairman, London's Mayor F.G. Stronach, and J. Gillies, Chairman of the P.U.C., officiated at a sod-turning ceremony at Grand Bend, the Lake Huron site of the pipeline's intake. At the same time, London's P.U.C. was working on plans for a pumping station and a trunk line to the city from Arva, a community four miles north of the city where the pipeline was to terminate at a large reservoir.

Work on the project, largest undertaken by the Commission and its Division of Construction up to that time, progressed favorably, and it was on June 27th, 1967, that the system began pumping water to the City of London's facilities at Arva.

To complete the picture, the Lake Huron Water Supply System was officially declared open on September 27th, 1968, in a ceremony at the Grand Bend site of the filtration plant. Hon. Charles S. MacNaughton, Treasurer of Ontario and Minister of Economics, and a one-time OWRC commissioner, officiated at the affair which was chaired by OWRC's general manager, D.S. Caverly.

This project was constructed through contracts between the OWRC and nine construction and other firms at an approximate cost of \$20 million, under the supervision of the Commission's Division of Construction.

Water for the system is obtained from Lake Huron through a 72-inch diameter intake, a mile and a half in length, after which it is screened and elevated by a low lift pumping station to a treatment plant where flocculation, filtration and chlorination processes take place. A clear-well reservoir of 1.4 million gallons capacity and a high lift pumping station containing pipeline pumps, surge tanks and related equipment form an integral part of the treatment plant complex.

The 30-mile pipeline carries the water cross-country to a terminal reservoir of 12 million gallons capacity which serves as a source for the re-pumping facilities owned and operated by the London Public Utilities Commission at Arva.

Provision was made for expansion of both the low-lift and high-lift station pumping potentials up to 72 millions Imperial gallons daily. These capacities at the start of operations were low-lift, 31.2 MIGD and, high-lift, 32 MIGD.

At an intermediate point along the pipeline, a branch stub was provided for a future reservoir and booster pumping station in such a way that these facilities could be included in the pumping scheme or by-passed, as desired.

By the end of 1968, the pipeline had no customers other than London, but construction was underway on a Grand Bend link and negotiations were underway with other municipalities.

## CORNWALL PROJECT

An important water pollution control project -- the most extensive undertaken by the Commission for an individual municipality -- was a sewerage system for the City of Cornwall. In pre-OWRC days the city had been under pressure by the Ontario Department of Health to take action in the matter of sewage treatment. In fact, a consulting engineer prepared a report on the subject in 1947, and then updated the same report in 1956.

The latter year was when the OWRC came into existence. And, interesting to note, the then-mayor of the city, Aaron Horovitz, was literally "waiting on the doorstep" in Toronto as the Commission held its first meeting on June 5th. The mayor was there to appeal for financial assistance for a water filtration project for which a contract had already been awarded, and for the sewerage project which was still in the discussion stage.

The city eventually completed the water works on its own, but negotiations in the matter of the sewerage project proved to be long drawn out. However, they finally were settled on the basis of a further engineering report in 1963 to allow a 1964 start on a planned five-year staged project held together by five separate OWRC-municipal agreements, one of which came under the Provincial Project plan whereby the Commission constructed the works and charged the city on a usage basis. This particular project included the treatment plant, the riverfront intercepting sewer, the main pumping station and the outlet pipe in the St. Lawrence River, collectively known as the St. Lawrence River Water Pollution Control Centre No. 1.

This particular contract was valued at more than \$5.2 million, with the entire job topping \$11.3 million. Other projects within the overall system included a citywide network of trunk sanitary sewers, combined relief sewers and storm relief sewers. Twenty major construction contracts were involved altogether.

Thus Ontario's farthest east city on the St. Lawrence River obtained its extensive and modern sewerage system which was operating by the end of 1968, with several more sewer jobs underway or pending at that time.

TRAGEDY

- At Dresden -

Despite its enormous construction program over the years, the safety record on these OWRC projects could not be rated as poor except for one tragic episode during 1957, the first year the Commission-municipal project program was in operation. Six workmen lost their lives at Dresden on August 14th when 200 tons of wet clay buried them alive while they were laying the foundation for the municipality's new waterworks system pumphouse.

A month later a coroner's jury investigating the tragedy termed the six deaths accidental following testimony which indicated lack of safety precautions at the excavation site, and the revelation that an unknown-of domestic drain had been leaking in the vicinity of the cave-in.

The victims were employees of Keillor Construction Co., Ltd., of St. Thomas. The firm later was charged with a breach of the Trench Excavators Protection Act, but won acquittal in a Chatham court. The magistrate in this case, Ivan B. Craig, strongly recommended an amendment of what he termed an ambiguous clause in the act.

Work on the project re-started later, with a new site selected for the pumphouse.



FIRST MANDATORY ORDER

- Brockville -

The Commission during its life from time to time issued various types of orders requiring municipalities, industrial firms or persons to take action to correct certain conditions which, in the opinion of the Commission, contravened the OWRC Act or a Regulation under that Act.

Perhaps the one which stands out is the first mandatory order issued by the OWRC, June 3, 1958, requiring the City of Brockville to clean up its water supply or face a possible fine of \$500 a day. The Commission felt that the health of the people of Brockville was being endangered by the fact that the city's water supply intake was in an unfavorable location and was subject to pollution from various outlets and drainage in and around Brockville.

Because of differences of opinion in the municipal council and the city's Public Utilities Commission, and resultant lack of action in regard to numerous OWRC warnings, the Commission felt that such indecision could lead to an undesirable health situation, and that immediate action was needed.

The Mandatory Order required Brockville to construct a new water supply works with an intake in the St. Lawrence River in the area adjacent to St. Lawrence Park in Brockville and upstream from the municipal source of potential pollution. Initiation of such a program would be expected not later than June 10, 1958. Tenders for construction were to be received not later than October 15th, with actual work to start as soon as possible thereafter.

The new works, built as a result of the order, started pumping Brockville's water early in the summer of 1960.

COURSES FOR PLANT OPERATORS

and the

ONTARIO PLUMBING REGULATION

The Commission's Division of Sanitary Engineering had wide responsibilities in relation to water quality management, water supply management and pollution control with a range of activities which embraced all the many facets of these three major programs.

Two of these facets involved plumbing and instructional courses for water and sewage plant operators.

In regard to the former, the division was responsible for supervision of the plumbing regulations in Ontario and the development of technical programs for the control of plumbing. At one time each municipality wrote its own by-laws concerning plumbing -- but in 1952 the Province enacted Regulation 261/52. This "Regulations under the Public Health Act respecting Plumbing and Sewers" became Ontario's first province-wide plumbing code. It was administered by the Department of Health -- specifically the Division of Sanitary Engineering.

In 1956 and 1957, the Commission's formative years, the authority to regulate plumbing was written into the Ontario Water Resources Commission Act. The change in control was not immediate, however.

A code committee was set up and working from the 1952 legislation, the first OWRC Plumbing Regulation was compiled. This was filed as Ontario Regulation 250/60 in September 1960. It was on September 30th that official authority in this regard was transferred from the Department of Health to the Commission. With the subsequent government program to consolidate all provincial regulations the Plumbing Code became Ontario Regulation 471/60.

The Plumbing Code was under almost constant revision since new materials, new equipment and new techniques kept making their appearances.

Two committees, one technical, consisting of municipal engineers, plumbers, plumbing inspectors and others, assisted OWRC staff in studying the changing needs in the field and recommending changes in the Code.

As a result, Ontario Regulation 471/60 later became 246/66, then 221/67 a year later.

The idea behind government supervision was to make uniform the regulations concerning plumbing and its installation uniform throughout all Ontario municipalities, with administration of the regulation in the hands of the individual municipalities.

The importance of proper operation of the Province's water and sewage plants was obvious to the Ontario Department of Health prior to the formation of the Ontario Water Resources Commission, so, in the mid-50s, the department started holding special instructional courses for operators of such plants.

On taking over from the department's Division of Sanitary Engineering in 1957, the Commission continued the recognition that such courses were important, particularly since OWRC itself was in the plant operating business. It further realized that the costly plants it was putting into operation and operating on behalf of municipalities all over Ontario also would have to be staffed by properly trained personnel if they were to be maintained at a high level of efficiency.

However, it was not until the period of transition from department to commission operation was just about complete that the time became opportune for the Commission to resume these courses. When it did, in 1960, it was decided to continue with a series of graded courses -- basic, intermediate and senior -- for operators of both OWRC-operated and municipally operated plants, water and sewage. It was felt, as previously by the Health department officials, that knowledge gained by attendance at such courses could only result in improved and more scientific operation of the plants involved.

Under the direction of the Division of Sanitary Engineering, but with technical personnel from other divisions as well as outside instructors and lecturers, the first OWRC basic course for water works operators was held in December, 1960, intermediate in 1961, and senior in 1962. First basic course for sewage works operators was in October, 1961, intermediate in 1962, and senior 1963.

Courses started on a Monday in the OWRC laboratory building's auditorium, were carried on through the week with a written test on the Friday. Certificates were awarded to successful students.

WATER SAGA SEPARATE  
No. 16

OWRC DISTINGUISHED SERVICE AWARDS

It was in 1959 that a suggestion was made to the Ontario Water Resources Commission that it set up some sort of an award in recognition of the efforts of individuals who were or at one time had been involved in promoting objectives similar to those of the OWRC.

After much discussion, consideration and thought had been given to the matter, it was decided to set up an award known as the Distinguished Service Award, in recognition of contributions in the field of water pollution control, and for public service directed to the preservation of clean water. Authorization for the awarding of such Distinguished Service Awards and approval of the form of award and its wording was made at a Commission meeting, November 8, 1960.

The form of award was a suitably framed parchment certificate together with a citation.

First awards were made in November, 1960, with three recipients being honored on the 29th in Toronto at a dinner meeting held in conjunction with the Commission's two-day Conference on Coordination of Water Pollution Control.

The first three recipients were Robert J. Hull of Toronto, President of Cities Service Oil Co., Ltd., for services in the industrial field; F.H. Kortright of Toronto, President of the Conservation Council of Ontario and the Canadian National Sportsmen's Show, for services in the promotion of conservation; and R.H. Mountain, former mayor of Stratford, Ont., for services in the municipal field.

In 1961, two awards were made -- to Honorable Charles S. MacNaughton, Minister Without Portfolio in the Ontario Government and a former member of the Ontario Water Resources Commission, and Ross L. Clarke, Commissioner of Works, Metropolitan Toronto. Presentations took place at a November 21st dinner meeting in conjunction with the Commission's Water Quality Management Conference in Toronto.

On January 15, 1963, three more awards were made, with presentations in the OWRC boardroom at the 801 Bay St., head office.



Recipients were Dr. L.W.C. Sturgeon, Medical Officer of Health and Director of the Welland and District Health Unit, and widely recognized in the public health field in Ontario; Dr. Hugh Templin, editor of the Fergus, Ontario News, and renowned conservationist; and Peter King, former alderman of the City of Sault Ste. Marie, Ontario, a public-spirited and civic-minded citizen.

The next presentation took place May 13, 1965, in the Main Provincial Parliament Building, Toronto, when the Honorable John P. Robarts, Q.C., Prime Minister of Ontario, and one-time OWRC Commissioner, presented four awards on behalf of the OWRC. The recipients were Honorable Leslie M. Frost, Q.C., of Lindsay, Ontario, former Prime Minister of Ontario who probably could be termed the "Father of the Ontario Water Resources Commission" because it was set up when he was in office and under his guidance; Dr. A.E. Berry of Toronto, President of the Conservation Council of Ontario and retired General Manager and Chief Engineer of the Commission; Dr. John S. Bates of Fredericton, N.B., chairman of both the New Brunswick and Nova Scotia water authorities; and a posthumous award in honor of Arthur Melville Snider of Waterloo, Ontario first chairman of the Commission who served OWRC for more than eight years.

Mr. Snider died in June, 1964, and the award at the presentation ceremony was received by his wife, Mrs. Mary Snider of Waterloo.

The award to Dr. Bates was the first to someone outside the Province of Ontario.

WATER SAGA SEPARATE

No. 17

MAKING IT KNOWN

--PR and Information--

The Commission set up a public information service directed by an Information Officer July 1, 1957, the initial program of which was to prepare and distribute news releases concerning Commission activities. Further, a staff bulletin was issued regularly from the start.

As the OWRC's program expanded, so did the activities of the Information Branch. A photographic service was added and preparation and production of pamphlets and brochures was initiated.

From 1957 to 1968 this office gradually took on more and more responsibilities -- including initiation of exhibits and advertising programs, the supervision of official opening ceremonies at OWRC-municipal projects, originally handled by the Division of Plant Operations, and the organization of an outdoor billboard campaign in the summer months.

All the while, the number of pieces of material available for distribution to the general public, especially to students of all ages continued to grow. Production of educational and other posters became a part of this program, while stickers and other giveaway items were produced for use at the various OWRC exhibit appearances.

The exhibits program was a major segment of the overall operations of this branch, and finally was expanded to include several portable units which toured key centres of Ontario during the summer and fall seasons.

A staff of two in 1957 gradually expanded to seven by early 1968 and to eight later in the year. Temporary additional help was taken on as required in later years to assist with exhibits and other services. Staff included specialists in photography, news and magazine writing and exhibits design and production.

By early 1968, demands on the original Information Branch had become so great that the information program was completely reorganized and set up under a Director of Public Relations with the section re-named Public Relations and Information.

Both the exhibits and motion picture production activities were expanded under the new set-up, with special attention paid to a public speaking program. Early 1968 had seen the completion of the Commission's first internally produced and filmed motion picture -- "The Invisible River". A short TV feature had been successfully attempted in 1967, and another short for exhibits work was completed in 1968. Late that year a start was made on another internally produced item to be titled "Teamwork".

To give PR & I a good start on its own film library, a third item -- "The Choice is Yours" -- was completed during 1968 for the Commission by an outside agency.

A special Commission annual award was set up in 1967 for the Ontario weekly newspaper producing the most outstanding editorial concerned with water resources.

A high in literature distribution was achieved in 1968 when approximately 169,000 copies of various OWRC publications and educational aids were distributed. In addition, a quantity of lapel stickers, bookcovers and similar items were given out at the exhibits where a number of requests for additional material was received.

## ABOUT THE AUTHOR

WATER SAGA was researched and written by John C. Scott immediately prior to his retirement from Ontario Government service in 1969. At the time he was on this particular assignment, he was a special assistant in the office of OWRC General Manager D.S. Caverly.

A former newspaperman, Mr. Scott had followed the profession of journalism from 1923 to 1944 at which time he entered the field of public relations and publicity. While in the newspaper business, he had held writing and editing posts in New York, Montreal, Toronto and Vancouver. One Toronto assignment was a stint as a legislative reporter in the Ontario Legislature's Press Gallery.

He entered government service when he joined the Ontario Department of Health in 1951 as its first Director of Publicity, eventually transferring to the Ontario Water Resources Commission in 1957. At that time he set up OWRC's first public information services as head of its newly formed Information Branch. Mr. Scott shifted to Mr. Caverly's staff in 1968.



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